BOOK NO.
113 F548 1902 v.4
ACCESSION
5983

FORM 3431 20M 1-41

SAN FRANCISCO PUBLIC LIBRARY
3 1223 01441 9098

OUTLINES OF COSMIC PHILOSOPHY

BASED ON THE DOCTRINE OF EVOLUTION, WITH CRITICISMS ON THE POSITIVE PHILOSOPHY

BY

JOHN FISKE

WITH AN INTRODUCTION BY JOSIAH ROYCE

L'univers, pour qui saurait l'embrasser d'un seul point de vue, ne serait, s'il est permis de le dire, qu'un fait unique et une grande vérité. — D'ALEMBERT

Καὶ τὸ ὅλον τοῦτο διὰ ταῦτα Κόσμον καλοῦσιν, οὐκ ἀκοσμίαν. — PLATO

IN FOUR VOLUMES. — VOLUME IV.

BOSTON AND NEW YORK
HOUGHTON, MIFFLIN AND COMPANY
The Riverside Press, Cambridge

COPYRIGHT 1874 BY JOHN FISKE
COPYRIGHT 1902 BY ABBY M. FISKE, EXECUTRIX
ALL RIGHTS RESERVED

5983

3 1223 01441 9098

CONTENTS

PART II. SYNTHESIS (Continued)

CHAPTER		PAGE
XX.	CONDITIONS OF PROGRESS . . .	3
XXI.	GENESIS OF MAN, INTELLECTUALLY .	46
XXII.	GENESIS OF MAN, MORALLY . . .	104

PART III. COROLLARIES

I.	THE QUESTION RESTATED . . .	165
II.	ANTHROPOMORPHIC THEISM . . .	186
III.	COSMIC THEISM	231
IV.	MATTER AND SPIRIT	262
V.	RELIGION AS ADJUSTMENT . . .	291
VI.	THE CRITICAL ATTITUDE OF PHILOSOPHY .	321

OUTLINES OF COSMIC PHILOSOPHY

PART II

SYNTHESIS (*continued*)

"Die Thätigkeit des Organismus ist bestimmt durch seine Receptivität und umgekehrt. Weder seine Thätigkeit noch seine Receptivität ist an sich etwas reelles, Realität erlangen beide nur in dieser Wechselbestimmung. Thätigkeit und Receptivität entstehen also zugleich in einem und demselben untheilbaren Moment, und nur dieses Simultaneität von Thätigkeit und Receptivität constituirt das Leben. In den entgegengesetzten Richtungen, die durch diese Entgegensetzung entstehen, liegt das Princip für die Construction aller Lebenserscheinungen."— SCHELLING, *Erster Entwurf*. 1799.

CHAPTER XX

CONDITIONS OF PROGRESS[1]

AT the beginning of the chapter on the Evolution of Society, we remarked upon the error of those metaphysical writers who have gone so far as to ascribe progressiveness to an occult tendency inherent in human nature. It need not take a very long survey of human societies, past and present, to assure us that beyond a certain point stagnation has been the rule and progress the exception. Over a large part of the earth's surface the slow progress painfully achieved during thousands of prehistoric ages has stopped short with the savage state, as exemplified by those African, Polynesian, and American tribes which can neither work out a civilization for themselves, nor appropriate the civilization of higher races with whom they are brought into contact. Half the human race, having surmounted savagery, have been arrested in an immobile type of civilization, as in China, in ancient Egypt, and in the East generally. It is only in the Aryan and some of the Semitic races, together with the Hungarians and other

[1] [See Introduction, § 24.]

Finnic tribes subjected to Aryan influences, that we can find evidences of a persistent tendency to progress. And that there is no inherent race tendency at work in this is shown by the fact that some of the Aryans, as the Hindus and Persians, are among the most unprogressive of men. It becomes apparent, therefore, that the progress of the European Aryans, and of such other races as have from time to time risen from an immobile condition, can have been due only to a concurrence of favourable circumstances. In order to complete our outline sketch of the Evolution of Society, we must consider some of these circumstances, and thus, so far as possible, redeem the promise which was implied at the beginning of the discussion. By pointing out some of the conditions essential to progress in civilization, we must endeavour to throw a glimmer of light upon the fact that so small a portion of the human race has attained to permanent progressiveness. A faint glimmer of enlightenment is indeed the most we can hope for, and even this will perhaps be thought to have been obtained by a mere restatement of the problem in other words. Nevertheless, in other departments of study as well as in algebra, much good is often done by reducing a problem from one form of expression to another. For if such a reduction ends in classifying the problem, the first and most important step is taken toward a

solution. Let us deal in this way with the problem before us, which is one of the most complex and difficult that the history of the world presents.

It will be obvious to every one that there is a close kinship between this question in sociology and the biological question why certain species remain unchanged through countless ages. The latter fact has been urged as an obstacle in the way of the development theory, and has been felt to be such by Dr. Bastian, who has endeavoured to dispose of it by an extraordinary application of his favourite theories of archebiosis and heterogenesis.[1] But indeed those who urge this fact as an obstacle, and those who seek to explain it away, show that they have not thoroughly comprehended the Doctrine of Evolution. For example, it is not implied in the general law of evolution, as above expounded in chapter iv., that wherever the integration of matter and concomitant dissipation of motion are going on, there must always ensue a change from indefinite uniformity to definite multiformity of structure. As has already been shown, such a change can be expected to take place only when a number of specified circumstances concur in forwarding it. So it is one of the peculiar merits of Mr. Darwin's theory of natural selection, that it does not allege an unceasing

[1] Bastian, *Beginnings of Life*, vol. ii. pp. 584–640.

or ubiquitous alteration of animal and vegetal forms, but includes, in a general way, all cases of persistence of type, as well as all cases of progress or retrogression. One and the same general theory accounts for the fact that, while some species thrive in the struggle for life and acquire new capacities, others dwindle in numbers or deteriorate in structure, while others again maintain themselves unchanged throughout immense periods. Throughout all these cases, the general truth is easily discerned that the total result will depend upon a very complex combination of circumstances: the difficulty is in applying the general truth to the special cases that arise. Probably no naturalist could point out all the specific circumstances which have caused any one race of animals to prevail over another in the struggle for life. Such a task would probably demand a more vast and minute knowledge of the details of the organic world than it is as yet possible for the most unremitting industry, inspired by the highest genius, to acquire. Yet no one doubts the general principle that it is natural selection which determines, not only which races shall prevail, but also which races shall vary and which shall remain unmodified. So in dealing with human societies, in the primitive era with which the present discussion is chiefly concerned, the historic data are insufficient to enable us to ascer-

tain the precise circumstances to which the prevalence and the improvability of certain races are to be attributed. Nevertheless we can here, too, point out sundry general principles in accordance with which natural selection has determined the course of events.

In considering the action of natural selection upon the human race, we must first note how that action is, in some respects, materially modified by social conditions. Among inferior animals, even those which are gregarious, as the ruminants and sundry smaller carnivora, the preservation of any individual requires his almost complete adaptation to surrounding circumstances. There is so little division of labour, and consequently so little mutual assistance, that all must be capable who would survive. With the earliest manifestations of true sociality this state of things must be somewhat altered. Even in the rudest actual or imaginable society there is some division of labour, and some mutual assistance. Those who are less swift for hunting or less strong for fighting may at least perform services for the hunters and warriors, and in return will be more or less efficiently fed and protected ; so that those who fall below the average capability of the race are no longer sure to be prematurely cut off, and thus the agency of natural selection in keeping up a nearly uniform standard of fitness is to some extent

checked. In the highly complex societies which we call civilized, division of labour and coöperation have done much to obscure the effects of this agency. From the coöperation which goes on to a greater or less extent in all societies, and from the enormous heterogeneity of man's psychical organization, it follows that there are innumerable circumstances which may enable individual men to survive, in spite of their falling considerably short of the normal standard of the community and the age to which they belong. This fact, as will hereafter appear, renders it possible for man to have an ideal standard of excellence or successfulness in life, and is closely associated with the genesis of the ethical feelings of approval and disapproval.

But while natural selection among individuals grows somewhat less rigorous, its effects upon rival or antagonist societies are in no wise diminished in their beneficent severity. The attributes which tend to make a society strong and durable with reference to surrounding societies are the attributes which natural selection will chiefly preserve. As Mr. Wallace has pointed out: "Capacity for acting in concert for protection, and for the acquisition of food and shelter; sympathy, which leads all in turn to assist each other; the sense of right, which checks depredations upon our fellows; . . . self-restraint in present appetites; and that intelligent

foresight which prepares for the future, are all qualities that from their earliest appearance must have been for the benefit of each community, and would therefore have become the subjects of natural selection. Tribes in which such mental and moral qualities were predominant would have an advantage in the struggle for existence over other tribes in which they were less developed, and would live and maintain their numbers, while the others would decrease and finally succumb." [1]

The most conspicuous result of this unceasing operation of natural selection upon rival communities has been the continuous increase of the aggregate military strength of the human race, and the more and more complete segregation of this military strength into those portions of the race which are most civilized. As Mr. Bagehot has ably shown,[2] however broken or discontinuous the progressive career of the European family of nations may seem to have been in other respects, there can hardly be a doubt that the increase of their aggregate military force has been uninterrupted. There can hardly be a doubt that the total fighting power of the Mediterranean communities was greater

[1] Wallace, *Natural Selection*, p. 312.

[2] See his *Physics and Politics*, London, 1872, — a little book so excellent both in thought and in expression that one cannot but wish there were much more of it.

under Trajan than in the time of Polybios; that the sum of Latin and Teutonic strength in the days of Charles Martel was greater than in the days of Marcus Aurelius; that the united Europe of Pope Gregory VII. could have vanquished the united Europe of Charles the Great, but would have been no match for the united Europe of Philip, Elizabeth, and Henry; or that the existing generation of Aryans in Europe and America represents a greater quantity of military power than any previous generation. This result is partly due to the mere increase of the civilized communities in size and industrial complexity, and partly to the integration, over wider and wider areas, of communities previously isolated. But while there have been periods of intermittence in the operation of these social and political circumstances, as during the Teutonic reconstruction of the Roman Empire, the increase in total fighting power appears to have gone on without intermittence, showing that it has been in great degree due to a cause unremitting in its operation. That cause has been natural selection. In the earlier and ruder times it has operated through the *actual* conquest of the weaker tribes, provinces, or cities, by the stronger. In later and more refined ages, the quieter but equally stringent competition of nation with nation, involving the *possible* conquest or relative humiliation of

one by another, has caused a considerable proportion of the ever-accumulating intellectual and industrial acquirements of each nation to be expended (or, as Mr. Bagehot more happily says, "invested") in an increase of military strength.

From the coöperation of these circumstances the aggregate physical strength of civilized society has increased so enormously that in comparison with the military events of our time, the military events of antiquity seem like mere child's play, if we look at physical dimensions alone, and not at world-historic significance. Ignoring the latter point of view, Mr. Robert Lowe has maintained that the battle of Marathon was an event of less importance than "a good colliery accident," because, forsooth, only 192 lives were lost on the side of the Greeks![1] To him, however, who has acquired the habit of looking at European history as one connected whole, it will not seem extravagant to say that contemporary English civilization is indebted to the victory of Marathon in a far higher degree than to the victories of Crecy or Agincourt, or even of Waterloo. The immense relative importance of some of these ancient military events of small dimensions is due to the fact that the military strength was not then concentrated in the most highly civilized communities, as it is in modern times. In antiquity there

[1] See Freeman, *Comparative Politics*, p. 498.

was a real danger that the nascent civilization of higher type might be extinguished by the long-established civilization of far lower type, or even by barbarism, through mere disparity of numbers. We do not know how often in prehistoric times some little gleam of civilization may have been put out by an overwhelming wave of barbarism, though by reason of the great military superiority which even a little civilization gives, such occurrences are likely to have been on the whole exceptional. This great superiority is well exemplified in the ease with which the Greeks defeated ten times their own number of Asiatics at Marathon, and afterwards at Kynaxa. Nevertheless it cannot be questioned that the invasions of B. C. 490 and 480 were fraught with serious danger to Grecian independence, and if Datis or Mardonios had happened to possess the military talent of Cyrus or of Timour, the danger would have been alarming indeed. Now if little Greece had thus been swallowed up by giant Persia, and the nascent political and intellectual freedom extinguished in Athens as it was in the Ionic cities of Asia Minor, the entire future history of Macedonia, of Rome, and of Europe, would have been altered in a way that is not pleasant to contemplate. When we reflect upon the enormous place in human history which is filled by the products of Athenian intellectual

activity during the two centuries succeeding the victory of Marathon; when we remember that the foundations of philosophy, of exact science, of æsthetic art in all its branches, of historic and literary criticism, and of free political discussion, were then and there forever securely laid; when we consider the widely ramifying influences, now obvious and now more subtle, of all this intense productivity upon Roman ethics and jurisprudence, upon the genesis of Christianity, upon the lesser Renaissance of the thirteenth century, and the greater Renaissance of the fifteenth; when we see how inseparably the life of Athens runs as a woof through the entire web of European life down to our own times; — when we come to realize all this, we shall begin to realize how frightful was the danger from which we were rescued at Marathon and at Salamis.

Probably at no subsequent time has European civilization been in a position of such imminent peril. In the life and death struggle between Rome and Carthage, the military superiority belonged so decidedly to the more highly evolved community that even the unrivalled genius of Hannibal was powerless to turn the scale.[1] One of the most conspicuous features in Roman History, from the conquest of Spain by Scipio to the conquest of the Saxons by Charles

[1] See Arnold, *History of Rome*, vol. iii. p. 63.

the Great, was the continual taming of the brute force of barbarism, and the enlisting it on the side of civilization. In the earlier times there seems to have been real danger in the invasions of Brennus and of the Cimbri, and perhaps in that of Ariovistus. But with the conquest of Gaul and the more subtle process of Romanization which the Teutons underwent, the danger from these sources disappeared, until, when the great struggle with outer barbarism came in the fifth century, we see the Empire saved on a Gaulish field by the prowess of the West-Goth. The battle of Châlons seems to me to have been the last of the great fights in which the further continuance of European civilization was really imperilled. Though the victory of Attila could hardly have entailed the rebarbarizing of the whole Empire, it might well have caused such a temporary "solution of continuity" between ancient and modern history as the old historians supposed to have been wrought a few years later by the comparatively insignificant intrigues of Odoacer. Many hard-working years might have been needed to recover the ground thus lost. But in passing to the eighth century, I think we may well doubt the soundness of Gibbon's suggestion that the victory of Abderahman at Tours might have led to the Mohammedanization of Europe; for while one great defeat forced the Arabs to re-

tire behind the Pyrenees, on the other hand the complete overthrow of the Frankish power would probably have required many battles as fierce as this one. This increased toughness of civilization is still more plainly seen five centuries later, when the overwhelming victory of the Mongols at Liegnitz produced no effect at all beyond a temporary scare. It was not that the invasion under Batu was intrinsically less formidable than the invasion of Attila, but that the physical strength of civilized Europe had been growing throughout the long interval, so that the blow which might once have proved fatal was no longer dangerous. Since the fruitless sieges of Vienna by the Turks, the mere dread of barbaric or semi-barbaric invasion has passed away forever. Tribally organized barbarism is henceforth out of the lists entirely, and even the civilization of lower type has ceased to compete, in a military way, with the civilization of higher type.

Thus we see how natural selection, facilitating and coöperating with the integration of the more civilized communities and their increase in size and complexity, has gradually removed one of the dangers to which the earlier civilizations were exposed, and has concentrated the power of making war on a grand scale into the hands of those communities in which predatory activity is at the minimum and industrial activity at

the maximum. We are thus again reminded of the curiously coöperating processes, partially illustrated in the preceding chapter, through which warfare or destructive competition, once ubiquitous, is becoming evanescent, and giving place to a competition that is industrial or productive in character. But what now more especially concerns us is to look back to the earlier stages of the struggle for life between communities, and to observe some of the circumstances which must have tended to make some communities prevail over others.

The illustrations just cited show well enough the tendency of the higher type of civilization to prevail, in the long run, over the lower type. They are illustrations of the military advantages of civilization. And Mr. Bagehot has incidentally shown how thoroughly this fact disposes of the old-fashioned doctrine that modern savages are the degraded descendants of civilized ancestors. It was formerly assumed that, instead of mankind having arisen out of primeval savagery, modern savages have fallen from a primeval state of civilization, having lost the arts, the morality, and the intelligence which they once possessed; and of late years some such thesis as this has been overtly maintained by the Duke of Argyll. Such a falling off, upon any extensive scale, is in every way incompatible with the principle of natural selection. Take,

for example, the ability to anticipate future contingencies, — to abstain to-day that we may enjoy to-morrow. In the next chapter it will be shown that this is the most prominent symptom of the deepest of all the intellectual differences between civilization and savagery. Now, obviously, the ability to postpone present to future enjoyment is, in a mere economic or military aspect, such an important acquisition to any race or group of men, that when once acquired it could never be lost. The race possessing this capacity could by no possibility yield ground to the races lacking it, unless overwhelmed by sheer weight of vastly superior numbers, — a case which the hypothesis of a universal primitive civilization does not leave room for. Or take the ready belief in omens by which the life of the savage is so terribly hampered. Could a single tribe in old Australia have surmounted the necessity of searching for omens before undertaking any serious business, it would inevitably, says Mr. Bagehot, have subjugated all the other tribes on the continent. In like manner it is obvious that such implements as the bow and arrow and the iron swords or hatchets could never have given place to the boomerang and the knives and hatchets of stone or bronze; and the intellectual capacity implied in monotheism and the discovery of elementary geometry could never have been conquered out

of existence by the intellectual capacity implied in fetishism and the inability to count above three or four. So, because the men who possess the attributes of civilization must necessarily prevail, in the long run, over the men who lack these attributes, it follows that there cannot have been, in prehistoric times, a general loss of the attributes, external and internal, of civilization.

Now one of the attributes which will most surely give to any group of men an advantage in the competition with neighbouring groups is the presence of a powerful bond of union between its members. Our entire survey of social evolution shows that one of the most distinctive characteristics of civilized men is their capacity for acting in concert with one another over wider and wider areas. The next chapter will enable us more fully to understand that the acquirement of this capacity is simply a further prolonging of the extension of correspondences in time and space which has been shown to be a leading characteristic of psychical progress throughout the organic world. The growth of this capacity, during historic times, has been a complex result of the increase of progressive communities, in size, in heterogeneity, and in reciprocity of intercourse. For this many-sided development has not only entailed a relative weakening of the more anti-social impulses and

a complicated interlacing of the interests of communities and individuals, but it has also entailed a general widening and diversifying of intellectual experiences, enabling men to realize the desirableness of those remoter ends which are indirectly secured by concerted action over wide areas. Thus in a high state of civilization a large amount of concerted action is ensured by the operation of the ordinary incentives to individual activity, without the aid of extraordinary incentives especially embodied in governmental edicts, political, sacerdotal, or ceremonial. But in a primitive state of society it is quite otherwise. It is notorious that uncivilized men cannot be made to act in concert save under the stimulus of loyalty to a chief, or of reverence for some superstition, or of slavish obedience to time-honoured custom. Hence in early times those communities are most likely to prevail in which loyalty, reverence, and obedience are most strongly developed. From a military point of view there are hardly any other advantages which can outweigh these. Rigidity in family relationships is one instance in which these advantages are manifested. A community in which the *patria potestas* is thoroughly established must inevitably subjugate those rival communities in which kinship is reckoned through females only. The common sense of the old historians perceived and insisted upon the fact

that much of the marvellous success of the Roman commonwealth was traceable to strictness of family discipline. In like manner, as Mr. Bagehot has suggested, we may discern the true social function performed by those dreadful religions of early times which so naturally awakened loathing and horror in such thinkers as Lucretius: they enforced, with tremendous sanctions, such lines of conduct as were prescribed by the necessities of the primitive community; they rendered it easier to ensure concerted action among men by compelling all to act in conformity to some unchangeable rule.

In short, among numerous tribal groups of primitive men, those will prevail in the struggle for existence in which the lawless tendencies of individuals are most thoroughly subordinated by the yoke of tyrannical custom, — the only yoke which uncivilized men can be made to wear. Such communities will grow at the expense of tribes that are less law-abiding. It matters comparatively little, as Mr. Bagehot says, whether the tyrant custom be intrinsically good or bad: the great thing, at first, is to subject men's individualities to a system of common habits. Mr. Mill has complained, in his work on "Liberty" and elsewhere, that one of the characteristics of modern civilization is the disappearance of strongly marked individualities,

such as we find in mediæval and in ancient civilization. But surely he is quite mistaken in this, — and his mistake arises partly from neglect of the circumstance that in ancient and in feudal times the full manifestation of one powerful individuality was achieved only through the utter sinking of many weaker individualities, and partly from the fallacy of taking the unparalleled community of Athens as a type of ancient communities in general. Surely in no previous age has there been anything like so wide a scope for the manifestation of strongly marked individuality of thought or character as in the present age. It would, indeed, be hardly too much to say that this is the first age in human history which has given us a realizing foretaste of the time when freedom of thought and freedom of action shall not only be acknowledged as a right but insisted upon as a duty for all men. But this is due to the fact that men's natures have, through long ages of social discipline, become in some degree adapted to the social state. This relatively free recognition of idiosyncrasies in thought or demeanour shows that modern society can count upon an organic or instinctive conformity to law on the part of individuals, upon which ancient society could not count. In early times, freedom from the yoke of custom meant simple lawlessness ; and against such disintegrating lawlessness all the most formi-

dable sanctions which society could devise were brought to bear. Hence the feeling of corporate responsibility is universal among primitive societies. "Not only the mutilators of the Hermai, but all the Athenians — not only the violator of the rites of the *Bona Dea*, but all the Romans — are liable to the curse engendered; and so all through ancient history." In such a stage of mental development, the community as a whole is beset with perpetual anxiety concerning the words and deeds of its members; and it is to a great extent from this sense of corporate responsibility that persecution for heresy in opinion or eccentricity in behaviour is ultimately derived.

The inference from all these considerations is obvious. Tribes with the strongest sense of corporate responsibility, with the most rigid family relationships, the most despotic yoke of custom, go on growing through long ages at the expense of rival tribes in which the means for securing concerted action over wide areas are less perfect. Age after age some competing tribes are exterminated or enslaved, while others are absorbed by the victorious tribe and assimilated to it; and thus age after age the bond of tyrannical custom becomes stronger and more rigid, while it extends over wider areas and constrains a larger number of people to uniformity of behaviour. Such a process will naturally result in

the formation of a huge social "aggregate of the first order," as in Egypt, Assyria, China, Mexico, and Peru. The common characteristic of these civilizations of lower type is that their growth in size has been out of all proportion to their increase in structural heterogeneity. Though they may contain many cities, they contain nothing like the civic type of social organization, as seen in Greece and Italy; and though they have taken on the semblance of nations, yet they lack the fundamental conception of true Nationality, — the union of individuals through community of interests, rather than through physical community of descent.[1] In all these half-civilized societies, we find that the primitive tribal

[1] In antiquity the only conceivable bond of social union was community of descent, actual or fictitious. Even the conception of territorial proximity as a source of common action did not gain currency in Europe till towards the tenth century of the Christian era. Theodoric the East-Goth, whom the old historians called "King of Italy," would not have understood the meaning of the phrase. In those days a man could be king of a group of kindred people, without reference to locality, but such a thing as kingship of a geographical area was unintelligible. The modern nationality (of which the United States is perhaps the most perfect type) is founded upon the thorough subordination of the patriarchal theory of community in blood to the modern theory of community in interests. The so-called "doctrine of nationalities," about which so much sentimental nonsense has been written, ought rather to be called the "doctrine of races," since it is virtually a revival of the patriarchal theory. It may be truly said that,

or patriarchal mode of structure is simply expanded without being essentially altered. The family is still the unit of society, the sense of corporate responsibility is still powerful, individual careers are still determined by status and not by contract, originality in opinion or in demeanour is still prohibited by the most formidable legal or social penalties; the tyranny of custom, in short, is still paramount, and — to crown all — the three kinds of governmental agency, political, ecclesiastical, and ceremonial, are still concentrated in the person of the patriarchal ruler, who is at once king, chief-priest or vice-deity, and master of ceremonies.

Observe now the dilemma which seems to confront us. In the operation of natural selection upon primitive tribes, we seem to have found a satisfactory explanation of the growth of such social "aggregates of the first order" as China or old Mexico. But now, how are we going to get past this stage? How shall we account for the formation of social aggregates of a higher type? The problem now before us is how to relax the tyranny of custom, and thus afford a chance for social reorganization, without entailing a retrogression toward primeval lawlessness. It is one of the puzzles of socio-

in spite of greater ethnic diversity, Switzerland, for example, is in many respects more completely a nationality than Spain.

logy that the very state of things which is pre-eminently useful in bringing men out of savagery is also likely to be preëminently in the way of their attaining to a persistently progressive civilization. "No one," says Mr. Bagehot, "will ever comprehend the arrested civilizations unless he sees the strict dilemma of early society. Either men had no law at all, and lived in confused tribes, hardly hanging together, or they had to obtain a fixed law by processes of incredible difficulty. Those who surmounted that difficulty soon destroyed all those that lay in their way who did not. And then they themselves were caught in their own yoke. The customary discipline, which could only be imposed on any early men by terrible sanctions, continued with those sanctions, and killed out of the whole society the propensities to variation which are the principle of progress." [1]

Mr. Bagehot shows that this problem has never been successfully solved except where a race, rendered organically law-abiding through some discipline of the foregoing kind, has been thrown into emulative conflict with other races similarly disciplined, — a condition which has been completely fulfilled only in the case of the migrating Aryans who settled Europe. But before we can extricate ourselves from our seeming dilemma, we need to point out, more distinctly

[1] *Physics and Politics*, p. 57.

than Mr. Bagehot has done, that in all probability none of the progressive Aryan races has ever passed through anything corresponding to the Chinese or Egyptian stage, and that when a community has once got into such a state of fixity, it is really questionable whether it can ever get out of it, unless under the direct tuition of other communities. It would at present be premature to speculate upon the results which are likely to flow from British dominion in Hindustan, or from the intrusion of European ideas into Japan and China. Looking to the past only, it is safe to say that when the "cake of custom" has become so firmly cemented, and on such a great scale, as in these primitively organized communities, there is but little likelihood of its getting broken. The Oriental stage — if one may so call it — is not a stage through which progressive nations pass, but it is a stage in which further progress is impossible, save through the occurrence of some deep-reaching social revolution. The progressive races are just those which have in some way avoided this dilemma, — which have succeeded in securing concerted action among individuals without going so far as to kill out the tendency to individual variations. Historically we find no traces of primitive political despotism among the European Aryans. Alike among Greeks, Italians, Teutons, and Slavs, we find the elements of a free constitu-

tion at hand, and the "age of discussion" inaugurated, at the very beginnings of recorded history. Though society is still constructed on the patriarchal type, there is nevertheless an amount of relative mobility among the social units such as is not witnessed either in Oriental despotisms or among modern savages.

I believe, therefore, that the character of the dilemma is somewhat inadequately represented by Mr. Bagehot. It is not quite true that in a progressive society the "cake of custom" must first be cemented as firmly as possible, and then afterwards broken. For when the cementing passes beyond a certain point, the breaking becomes impracticable. The dilemma consists rather in the fact that in a progressive society the cementing and the breaking of the "cake of custom" must go on simultaneously. Observe the seeming contradiction.

While it is perfectly true that the power of concerted action on a large scale gives to the community possessing it a decided military advantage, and while it is true that in early times this power of coöperation can hardly be gained save through the uniformity of discipline prescribed by tyrannical custom, it is also true that a considerable amount of individual variability is, even in early times, a source of military strength to the community. For in all stages of progress the law holds good that, in order

to ensure a permanent supply of first-rate individual excellence, whether in intellect or in character, there must be perpetual variation, — the members of the community must not all conform to precisely the same standard of belief or action. It is not simply that out of the conflict of opinions there comes an increase of mental power, but it is that where absolute uniformity of opinion is enforced, the very individuals most capable of serving the community by reason of superior mental power are neglected, thwarted, or killed off. The truth is not yet wholly trite that the most valuable men of every age are its heretics. For this truth is obscured by the kindred truth that the heresy of one age is the orthodoxy of the next, — so that complacent orthodoxy, ignoring the historical point of view, is wont to claim as its allies today the very men whom it burnt or crucified in days gone by. Obviously it is in the nature of things that this should be so. If old-established ideas were never to be unsettled, new truths would cease to find recognition, and progress would be at an end. But in any age the discoverers and promulgators of new truths are to be found only among those who possess the superior mental flexibility requisite for shaking themselves loose from the network of old-established ideas. And wherever there is such mental flexibility, there is sure to be heresy.

Above all is this true in early communities, for in these later times we have become so far accustomed to variations in belief and practice, and have so far substituted individual for corporate responsibility, that there is a great deal of variation which we do not count as heresy, but which formerly would have been regarded as such. Hence in an early community, the enforcement of absolute uniformity of belief and practice must establish a kind of natural selection tending to weed out all superior flexibility of mind. As a direct result the community closes up a prolific source of military superiority in the shape of individual political and military genius; for men of the Themistokles type are not produced, as a rule, in such states of society. The indirect result will be more fully appreciated when the next chapter has shown us how closely mental flexibility is implicated with that power of representing objects and relations remote from sense which also underlies the invaluable power of anticipating future emergencies. To weed out superior flexibility of mind is to check further development in forethought or longheadedness, — a truth of which the entire history of the Oriental communities, so unlike each other in many respects, is one long and reiterated confirmation. Still further, when we recall the patent fact that the efficiency of any community is measured by the efficiency of its

individual members, and that this efficiency is kept up by a kind of natural selection which is none the less potent for not working with the death penalty as among lower animals, we shall realize how great is the military advantage entailed by free variation and competition. In illustration of all this we may recur to a historical event already cited for other purposes. When the Mede, whose laws were quoted as the very type of unchangeableness, sought to add to his overgrown dominions the modest patrimony of the Athenian, of whom it was said that he was ever curious after new and unheard-of things, the wager of battle resulted in no doubtful verdict. When it is asked how Miltiades, with his ten thousand, could so quickly put to flight Datis, with his hundred thousand, the unhesitating reply is that the result was due to the superior social organization under which the ten thousand were reared. But this superiority of organization consisted mainly in the fact that the individual career of the Mede was prescribed by unvarying tradition, while the maxim upon which the Athenian implicitly acted was *La carrière ouverte aux talents.*

These are some of the military advantages of Mr. Bagehot's "age of discussion." But in truth they are advantages which do not belong exclusively to any age or to any epoch of development, but are operative at all times, though

in different ages and communities their action is diversely complicated with the action of the opposite advantages previously considered. Mr. Bagehot's error — if it be real and not merely apparent — lies in describing as purely successive circumstances which must have been in great degree simultaneous. The "strict dilemma of early society" is not that the fetters of tyrannical custom must first be riveted and afterwards unriveted, but that they must be riveted and unriveted at the same time in communities which are destined to attain to permanent progressiveness. On the one hand we have seen that primitive societies in which uniformity of belief and practice is most sternly enforced will prevail in the struggle for life. On the other hand we have seen that primitive societies in which flexibility of mind is most encouraged will come out uppermost. And herein lies the seeming dilemma or contradiction.

In reality, however, as the whole question is one of warfare, so it is practically a struggle for life between these two principles. Into the numberless combinations of circumstances which have given the victory now to one side and now to the other, we cannot inquire, from lack of historical data. On general grounds we may admit that, at the outset, uniformity must have been a more important possession than flexibility; we can plainly see how those communities that con-

quered by means of uniformity became caught, as it were, in their own toils, and were estopped from further progression; and we can see how those communities that won the day by preserving a modicum of flexibility have been rewarded by unlimited progressiveness. We can thus dimly discern the way in which China has become immobile, while Europe has become ever more and more mobile. But beyond these most general indications of what has happened, we can discern but little. We cannot tell precisely, for example, why the European Aryans won the day by preserving a modicum of flexibility, rather than by enforcing such a monotony of disposition as would kill out all flexibility. At the earliest dawn of history the European portion of the Aryan race already surpasses all other races, both in individual variety of character and in longheadedness. The details of the process by which this superiority was gained are hidden from us in the night of time. Upon one point, however, we may profitably speculate. Among all the historic civilizations, the European is the one of which we can most decidedly assert that it is not autochthonous. The Aryans who conquered Europe in successive Keltic, Italo-Hellenic, Teutonic, and Slavonic swarms, were not the quiet, conservative, stay-at-home people of prehistoric antiquity, but were rather the elect of all the most adventurous and flexible minded

portions of the tribally organized population of Central Asia. Their invasion of Europe was in this respect like the subsequent invasion of England by the miscellaneous hordes roughly described as Angles and Saxons, Danes and Normans, and like the still later colonization of North America by the most mobile and adventurous elements of West European society. We may fairly suppose that the Aryan invaders of Europe were the most supple minded of their race, — the "come-outers," perhaps, for whom the cake of custom at home was getting too firmly cemented, but who had undergone sufficient social discipline to enable them to get along with a less solid cake in future. However this may be, the main point is that they were not aborigines but colonizers, and as such were subjected to a great heterogeneity of environing circumstances from the time when we first catch sight of them. They were the pioneers or Yankees of prehistoric antiquity, in whom unusual flexibleness of mind was the natural result of continual change in the sets of relations to which they were obliged to make their theories and actions conform. Prehistoric antiquity presents no other case like this. The great immobile civilizations appear to have grown up in comparatively well-protected regions, where competition with outlying communities was checked at an early date. Screened in this way

from intercourse with the outside world, and adapting themselves to an environment which altered but little, there was nothing which could serve to shake them loose from their monotony of discipline. A more extreme instance of a kindred phenomenon is seen in the fact that in those protected corners of the world where competition has always been at a minimum, we find the smallest conceivable amount of progress from utter bestial savagery. That same isolation which has kept the flora and fauna of Australia in such a backward state that they are now melting away before the imported plants and animals of Europe as snow melts under a vernal sun, — that same isolation has retained the Australian man until this day at the lowest level of humanity. Similar things might be said of the Fuegians, the Andaman Islanders, and some of the hill tribes of aboriginal non-Aryan Hindus. Where there has been least competition and least natural selection, there has been least progress from savagery. Now returning to the immobile civilizations, when we bear in mind that of the two conflicting elements of military advantage, uniformity was likely to be of most importance at first and flexibility afterwards, we may begin to discern, I think, that where competition ceased at an early date, uniformity may well have carried the day and crushed out flexibility altogether. Herein we have an excellent

explanation of the immobility of Egypt, China, Peru, and Mexico; and with some further qualifications an analogous case might be made out for Assyria and Northern India. But no such early cessation of competition could have occurred in the case of our Aryan forefathers. Little as we know concerning the circumstances of their prehistoric development, we know at least that it took place on the great highway between the teeming mainland of Asia and the coveted peninsula of Europe. In this swarming region there was kept up until quite recent times that intense competition of tribe with tribe which had all but died out in Egypt and China before the dawn of history. All this entailed for each winning tribe a greater heterogeneity of environment than in any other instance. Under such circumstances uniformity could hardly have carried the day so far as to crush out flexibility. Continual change of foes to be overcome, and of natural obstacles to be surmounted, must have given the advantage at last to those tribes which had gained enough uniformity to ensure concerted action, without sacrificing their versatility of mind in the process.

To some such considerations as these we must look for the partial explanation of the fact that at the beginnings of recorded history we find in the European Aryans all the essential elements of progressiveness. The continuance

of this progressiveness during the historic period is a fact which need not long detain us. Since the beginnings of Mediterranean civilization, the heterogeneity of the environment has been too great, and the changes in the environment too rapid, to allow of general stagnation; while the assaults of outer barbarism have been for the most part warded off by the military superiority which this higher civilization has entailed. At times there has been an appearance of danger that much of this hard-won advantage might be lost, not merely through assaults from without, but through causes internally operating. After the earlier incentives to noble and varied activity connected with the autonomous spirit had been destroyed by the universal hegemony of Rome, the need for protection from the threatening barbarian began to bring about a retrogression, in which for a time uniformity seemed likely to flourish at the expense of individuality. It is instructive, from this point of view, to observe the gradual change toward an Oriental type of government which went on from the time of Augustus to that of Diocletian. In the eastern half of the Empire, after its final political severance from the western half at the end of the eighth century, this change became really consummated, and after a while defeated itself by culminating in a social stagnation and military feebleness which invited the sharp scimi-

tar of the Mussulman. But in the West this fatal growth of patriarchal despotism was early checked by the rise of Christianity as an independent spiritual power, by the immigration of the German tribes, and by the union of these two circumstances. Europe was in no immediate danger of lapsing into an Oriental condition when an Ambrose could say to a Theodosius, "Thus far shalt thou go and no farther." The German tribes, by their direct coalescence into national aggregates, without passing through the civic stage of organization, furnished, in various degrees of completeness, the principles of representation and federation — thus adding important elements of new life to the Empire. While finally the Christianization of these tribes, leading to the famous compact by which the Head of the Church transferred the lordship of the western world from the degenerate Byzantine to the strong-armed Frank, inaugurated a balance of powers which preserved Europe henceforth from any danger of becoming either a sultanate or a caliphate. In this twofold supremacy of Church and Empire during the Middle Ages, we have one of the most remarkable compromises between antagonist forces known to history; for while the tendency of either set of forces acting alone would have been toward absolute despotism, either in the spiritual or in the temporal form, on the other hand their joint

action and counter-action was in a high degree conducive to the development of individual liberty of thought and behaviour.

The various hints here given thus combine to show how, both in historic and in prehistoric times, the European Aryans would seem to have profited by circumstances tending to encourage individuality without weakening concentration. Hence the peculiarly plastic consistency — the flexibility combined with toughness — of West-Aryan civilization. Hence the European races all possess the capacity of innovating without revolution. The English and the old Romans have exhibited this capacity in the highest degree; the Spaniards and the French, in recent times, owing to previous reversion toward a despotic régime, have shown themselves partially deprived of it. But while it is thus manifested in quite various degrees, all alike possess it in a high degree as compared with those races which have been arrested in the Oriental stage of civilization.

The successful achievement of innovation without revolution depends mainly upon an artifice which derives its validity from one of the most deep-seated tendencies of the human mind, and which has unquestionably been one of the chief agencies in forwarding social progress. I refer to the artifice of "legal fiction," as shown in the pretence that the novelty of

belief or practice just inaugurated has its warrant in time-honoured precedent. The disposition to justify all innovation by means of this artifice is so strongly rooted in human nature that it is likely to be manifested for a long time to come, — probably until the millennial victory of that "pure reason" about which sentimental philosophers have prated, but which hitherto has played a very subordinate part in shaping human affairs. It is this disposition which leads the orthodox, after resisting some scientific heresy until resistance is no longer possible, to discover all at once that the heresy was really taught by Suarez, or St. Augustine, or Moses. It is this which enables changes to be made "constitutionally," or in accordance with a system of edicts framed in an age when the changes in question could not possibly have been contemplated or provided for. Yet among ourselves, where the dread of novelty is comparatively slight, there is some difficulty in realizing how all-essential is this kind of artifice in early times. "To this day many semi-civilized races have great difficulty in regarding any arrangement as binding and conclusive unless they can also manage to look at it as an inherited usage. Sir Henry Maine, in his last work, gives a most curious case. The English government in India has in many cases made new and great works of irrigation, of which no ancient Indian

government ever thought; and it has generally left it to the native village community to say what share each man of the village should have in the water; and the village authorities have accordingly laid down a series of most minute rules about it. But the peculiarity is, that in no case do these rules 'purport to emanate from the personal authority of their author or authors, which rests on grounds of reason, not on grounds of innocence and sanctity; nor do they assume to be dictated by a sense of equity; there is always, I am assured, a sort of fiction under which some customs as to the distribution of water are supposed to have emanated from a remote antiquity, although, in fact, no such artificial supply had ever been so much as thought of.' So difficult does this ancient race — like, probably, in this respect so much of the ancient world — find it to imagine a rule which is obligatory, but not traditional."[1]

Now among the European Aryans, within historic times, this species of artifice assumed a form which made it in a very high degree conducive to the permanent progressiveness of the race. If we look into the great writers who in the seventeenth century illustrated with exquisite beauty and clearness the doctrines of Public Law, we find their heads filled with the notion of a primitive natural code, fit for regulating in-

[1] Bagehot, *Physics and Politics*, p. 142.

ternational concerns, and for supplying everywhere the shortcomings of civil legislation, its degenerate offspring, whose worth must be rated according to the degree in which it approaches the perfection of its parent. The influence of this conception may be best appreciated by reflecting on the extent to which contemporary legal literature, whether embodied in expository treatises or in judicial decisions, is impregnated by it. The appeals to "right reason" and "natural reason" which since Blackstone's time have filled a considerable place in juristic dissertation, bear unequivocal marks of their origin. Nowhere better than here can we see exemplified the mighty influence of the ideas of Roman jurisprudence upon modern thought. Sir Henry Maine has well delineated the process by which, from the constantly felt want of a system of principles fit for settling disputes between Roman citizens and aliens or foreigners, there gradually arose in the Prætorian courts an equitable body of law founded upon customs common (or assumed as common) to all peoples alike. But far from comprehending the really progressive character of the noble juristic system steadily growing up under their own supervision — daily attaining grander proportions as the grotesque and barbarous elements hallowed by local usage were one by one eliminated from the body of equitable ideas which formed their

common substratum — the Prætors of the Republic and the great Antonine jurisconsults, under the immediate influence of Stoic conceptions, supposed themselves to be merely restoring to their original integrity the disfigured and partially obliterated ordinances of a primeval state of nature. The state of faultless morality and unimpeachable equity which constituted the ideal goal of their labours, they mistook for the shadow of a real though unseen past.

But this form of the unconscious artifice — due in general to the great heterogeneity of the Roman environment, and in particular to the continual interaction between Greek and Roman ideas — was very different from the form of it exemplified by the Hindu who refers his modern edicts about water supply to some remote era of primitive legislation. Between the two there is a world-wide difference, — all the difference between stagnation and progress. For the abstract and impersonal form in which the Roman conceived his *jus naturæ* made it possible for him to appeal to it, not simply in justification of particular departures from ancient custom, but in justification of the general principle of departure from ancient custom. It constituted, as it were, a court of appeal before which time-honoured customs must be called upon to establish their validity. It opened men's minds to the distinction between *mala prohibita* and

mala in se. It prepared the way for the recognition of a "higher law" of God as distinct from the local and temporary laws of man. And in this way it no doubt contributed largely toward the establishment of Christianity as an independent spiritual power in the Empire.

To deal adequately with these interesting illustrations would require us to extend this part of our discussion to disproportionate length. Our purpose is sufficiently subserved by the foregoing fragmentary statement, in which the problem of human progressiveness, though not fully solved, is at least so far classified that the solution of it is facilitated. We have seen that permanent progressiveness is found where the social aggregate is characterized by a cohesion among its parts which is neither too little nor too great. An excess and a deficiency of individual mobility have been shown to be alike incompatible with that persistent tendency toward internal rearrangement which we call progressiveness. The sociological puzzle to which Mr. Bagehot has called attention, and with which we have been concerned in the present chapter, is substantially the same thing as the dynamic paradox which confronted us when, in the fourth chapter, we were seeking to determine the conditions which enable Evolution in general to result in continuous increase of structural and functional complexity. The present case is, in-

deed, but a special form of the more general case. How to secure a compromise between fluidity and rigidity is in both cases the essential desideratum. Where the units which make up the aggregate have too much individual freedom of motion, the result is a fluid state in which there is no chance for stable structural arrangements. Where they have too little freedom of motion, the result is a solid state in which there is no chance for structural rearrangements. In the first case, where there is so little dissipation of motion, there is little or no Evolution. In the second case, where so little internal motion is retained, the Evolution which occurs is simply or chiefly a process of consolidation, unattended by any considerable advance from indeterminate uniformity toward determinate multiformity.

Bearing in mind that we are dealing, not with a mere series of striking analogies, but with a group of real resemblances which result from a fundamental homology between the special process here considered and the more general process which includes it, let us observe that one chief circumstance which secures mobility without loss of coherence is a heterogeneous and ever-changing social environment, to the heterogeneous changes of which the community is continually required to adjust itself. The illustrations above given unite in showing that

where circumstances have afforded such a heterogeneous environment (as a perpetual external excitant of internal rearrangements), the communities which have survived through relatively complete adjustment have manifested a permanent capacity for progress. Thus is our problem completely connected with the more general problem of natural selection, and with the most general problem of Evolution as manifested in all orders of phenomena. And thus the essential continuity of the processes of Nature is again strikingly illustrated.

In the following chapter we shall have frequent occasion to refer to this circumstance of heterogeneity of the social environment as manifested psychologically, in its effects upon the intellectual mobility of men regarded as individuals. To pursue the problem of progressiveness into this psychological region is the way in which to obtain a basis for the explanation of the progress from Brute to Man; and to this crowning inquiry we must now address ourselves.

CHAPTER XXI

GENESIS OF MAN, INTELLECTUALLY

THE chief difficulty which most persons find in accepting the Doctrine of Evolution as applied to the origin of the human race is the difficulty of realizing in imagination the kinship between the higher and the lower forms of intelligence and emotion. And this difficulty is enhanced by a tendency of which our daily associations make it hard to rid ourselves. There is a tendency to exaggerate the contrasts which really exist, by leaving out of mind the intermediate phenomena and considering only the extremes. Many critics, both among those who are hostile to the development theory and among those who regard it with favour, habitually argue as if the intelligence and morality of the human race might be fairly represented by the intelligence and morality of a minority of highly organized and highly educated people in the most civilized communities. When speaking of mankind they are speaking of that which is represented to their imagination by the small number of upright, cultivated, and

well-bred people with whom they are directly acquainted, and also to some extent by a few of those quite exceptional men and women who have left names recorded in history. Though other elements are admitted into the conception, these are nevertheless the ones which chiefly give to it its character. Employing then this conception of mankind, abstracted from these inadequate instances, our critics ask us how it is possible to imagine that a race possessed of such a godlike intellect, such a keen æsthetic sense, and such a lofty soul, should ever have descended from a race of mere brutes. And again they ask us how can a race endowed with such a capacity for progress be genetically akin to those lower races of which even the highest show no advance from one generation to another. Confronted thus by difficulties which reason and imagination seem alike incompetent to overcome, they too often either give up the problem as insoluble, or else — which amounts to nearly the same thing — have recourse to the *deus ex machina* as an aid in solving it.

Influenced, no doubt, by some such mental habit as this, Mr. St. George Mivart declares that, while thoroughly agreeing with Mr. Darwin as to man's zoölogical position, he nevertheless regards the difference between ape and mushroom as less important than the difference between ape and man, so soon as we take

into account "the totality of man's being."[1] In this emphatic statement there is a certain amount of truth, though Mr. Mivart is not justified in implying that it is a truth which the Darwinian is bound not to recognize. The enormous difference between civilized man and the highest of brute animals is by no one more emphatically recognized than by the evolutionist, who holds that to the process of organic development there has been superadded a stupendous process of social development, and who must therefore admit that with the beginning of human civilization there was opened a new chapter in the history of the universe, so far as we know it. From the human point of view we may contentedly grant that, for all practical purposes, the difference between an ape and a mushroom is of less consequence than the difference between an ape and an educated European of the nineteenth century. But to take this educated European as a typical sample of mankind, and to contrast him directly with chimpanzees and gibbons, is in the highest degree fallacious; since the proceeding involves the omission of a host of facts which, when taken into the account, must essentially modify the aspect of the whole case.

When we take the refined and intellectual Teuton, with his one hundred and fourteen

[1] *Nature*, April 20, 1871.

cubic inches of brain, and set him alongside of the chimpanzee with his thirty-five cubic inches of brain, the difference seems so enormous as to be incompatible with any original kinship. But when we interpose the Australian, whose brain, measuring seventy cubic inches, comes considerably nearer to that of the chimpanzee than to that of the Teuton, the case is entirely altered, and we are no longer inclined to admit sweeping statements about the immeasurable superiority of man, which we may still admit, provided they are restricted to civilized man. If we examine the anatomical composition of these brains, the discovery that in structural complexity the Teutonic cerebrum surpasses the Australian even more than the latter surpasses that of the chimpanzee, serves to strengthen us in our position. And when we pass from facts of anatomy to facts of psychology, we obtain still further confirmation — for we find that the difference in structure is fully paralleled by the difference in functional manifestation. If the Englishman shows such wonderful command of relations of space, time, and number, as to be able to tell us that to an observer stationed at Greenwich on the 7th of June, A. D. 2004, at precisely nine minutes and fifty-six seconds after five o'clock in the morning, Venus will begin to cross the sun's disk; on the other hand, the Australian is able to count only up

to five or six, and cannot tell us the number of fingers on his two hands, since so large a number as ten excites in him only an indefinite impression of plurality.[1] Our conception of the

[1] The Dammaras, according to Mr. Galton, are even worse off than this. "When they wish to express four, they take to their fingers, which are to them as formidable instruments of calculation as a sliding rule is to an English schoolboy. They puzzle very much after five, because no spare hand remains to grasp and secure the fingers that are required for units. Yet they seldom lose oxen; the way in which they discover the loss of one is not by the number of the herd being diminished, but by the absence of a face they know. When bartering is going on, each sheep must be paid for separately. Thus, suppose two sticks of tobacco to be the rate of exchange for one sheep, it would sorely puzzle a Dammara to take two sheep and give him four sticks. I have done so, and seen a man put two of the sticks apart, and take a sight over them at one of the sheep he was about to sell. Having satisfied himself that that one was honestly paid for, and finding to his surprise that exactly two sticks remained in hand to settle the account for the other sheep, he would be afflicted with doubts; the transaction seemed to come out too 'pat' to be correct, and he would refer back to the first couple of sticks; and then his mind got hazy and confused, and wandered from one sheep to the other, and he broke off the transaction until two sticks were put into his hand, and one sheep driven away, and then the other two sticks given him, and the second sheep driven away. . . . Once while I watched a Dammara floundering hopelessly in a calculation on one side of me, I observed Dinah, my spaniel, equally embarrassed on the other. She was overlooking half a dozen of her new-born puppies, which had been removed two or three times from her, and her anxiety was excessive, as she tried to find out if they were all

godlike intellect evidently will not apply here. If the emotions of the German and his intellectual perceptions of the fitness of harmonious sounds for expressing emotion are so deep and subtle and varied as to result in the production of choruses like those of Handel and symphonies like those of Beethoven, on the other hand the crude emotions of the Australian are quite adequately expressed by the discordant yells and howls which constitute the sole kind of music appreciable by his undeveloped ears. We look in vain here for traces of the keen æsthetic sense which in a measure links together our intellectual and moral natures. Again, if the American student has been known to be actuated by such noble ethical impulses and guided by such lofty conceptions of morality as to leave his comfortable home and his favourite pursuits, and engage in rough warfare, at the risk of life and limb, solely or chiefly that

present, or if any were still missing. She kept puzzling and running her eyes over them, backwards and forwards, but could not satisfy herself. She evidently had a vague notion of counting, but the figure was too large for her brain. Taking the two as they stood, dog and Dammara, the comparison reflected no great honour on the man." Galton, *Tropical South Africa*, p. 132, cited in Lubbock, *Origin of Civilization*, American Edition, p. 294. See also Tylor, *Primitive Culture*, vol. i. pp. 218–246. Probably the dual number, in grammar, "preserves the memorial of that stage of thought when all beyond two was an idea of indefinite number." Id. p. 240.

he might assist in relieving the miseries of far inferior men, whose direct claim upon his personal sympathies could never be other than slight, on the other hand the Australian has no words in his language to express the ideas of justice and benevolence, and no amount of teaching can make him comprehend these ideas. For although, like some brute animals, he is not wholly destitute of the primary feelings which underlie them, yet these feelings have been so seldom repeated in his own experience, and that of his ancestors, that he is unable to generalize from them. The lofty soul, which is too sweepingly attributed to man in distinction from other animals, is here as difficult to discover as the godlike intellect or the keen æsthetic sense.

In similar wise is made to disappear the sharp contrast between human and brute animals in capability of progress. Hardly any fact is more imposing to the imagination than the fact that each generation of civilized men is perceptibly more enlightened than the preceding one, while each generation of brutes exactly resembles those which have come before it. But the contrast is obtained only by comparing the civilized European of to-day directly with the brute animals known to us through the short period of recorded human history. The capability of progress, however, is by no means shared alike

by all races of men. Of the numerous races historically known to us, it has been manifested in a marked degree only by two — the Aryan and Semitic. To a much less conspicuous extent it has been exhibited by the Chinese and Japanese, the Copts of Egypt, and a few of the highest American races. On the other hand, the small-brained races — the Australians and Papuans, the Hottentots, and the majority of tribes constituting the widespread Malay and American families — appear almost wholly incapable of progress, even under the guidance of higher races. The most that can be said for them is, that they are somewhat more imitative and somewhat more teachable than any brute animals. In the presence of the Aryan, even under the most favourable circumstances, they tend to become extinguished, rather than to appropriate the results of a civilization which there is no reason to suppose they could ever have originated. The two great races of Middle Africa — the Negroes and the Kaffirs[1] — have shown, by their ability to endure slave labour, their superiority to those above mentioned; but their career, where it has not been interfered with by white men, has been but little less monotonous than the career of a brute spe-

[1] It is Haeckel who asserts a distinction of race between the Negroes and Kaffirs. It is not necessary, however, to insist upon the distinction.

cies. Of all these barbarian races, we commonly say that they have no history; and by this we mean that throughout long ages they have made no appreciable progress. In a similar sense we should say of a race of monkeys or elephants that it has no history.

Of like import is the fact that as we go backward in time we find the progressiveness of the civilized races continually diminishing. No previous century ever saw anything approaching to the increase in social complexity which has been wrought in America and Europe since 1789. In science and in the industrial arts the change has been greater than in the ten preceding centuries taken together. Contrast the seventeen centuries which it took to remodel the astronomy of Hipparchos with the forty years which it has taken to remodel the chemistry of Berzelius and the biology of Cuvier. Note how the law of gravitation was nearly a century in getting generally accepted by foreign astronomers,[1] while within half a dozen years from its promulgation, the theory of natural

[1] It was still on trial in France in 1749, when Clairaut and Lalande magnificently verified it by calculating the retardation of Halley's comet. It may be said that the French are notoriously slow in adopting ideas which have originated in other countries, and that they now ignore natural selection much as they formerly ignored gravitation. Nevertheless, in spite of the Academy and M. Flourens, there are plain indications that

selection was accepted by the great majority of naturalists. How small the difference between the clumsy wagons of the Tudor period and the mail-coach in which our grandfathers rode, compared to the difference between the mail-coach and the railway train! How rapid the changes in philosophic thinking since the time of the *Encyclopédistes*, in comparison with the slow though important changes which occurred between the epoch of Aristotle and the epoch of Descartes! In morality, both individual and national, and in general humanity of disposition and refinement of manners, the increased rapidity of change has been no less marked.

But these considerations are immensely increased in force when we take into account those epochs which, in the light of our present knowledge, can alone properly be termed ancient. Far beyond the comparatively recent period at which human history began on the eastern shores of the Mediterranean, extend the ages during which, as palæontology shows us, both the eastern and the western hemispheres were peopled by races of men. Ten thousand centuries before the time of Homer and the Vedic poets, wild men, with brute-like crania, carried on the struggle for existence with mammoths,

the doctrine of special creations is doomed speedily to suffer the fate in France which it has already suffered in Germany, England, and America.

tigers, and gigantic bears, long since extinct. And recent researches make it probable that even this enormous period must be multiplied six or eight fold before we can arrive at the time when men first appeared upon the earth as creatures zoölogically distinct from apes. The significance of these conclusions, even when we take into account only the shorter epoch of a single million of years, cannot be too strongly insisted upon. They show us that it is only in recent times that man has become widely distinguished from other animals by his capability of progress. If, as evidence of our present progressiveness, we cite the superiority of our Whitworth guns and Chassepot rifles over the howitzers and flintlocks used by our grandfathers, we must also remember that more than twenty thousand generations lived and died before the primitive stone hatchets and stone-pointed arrows were superseded by battle-axes and javelins headed with bronze. During these long ages each generation must have imitated its predecessor almost as closely as is the case with brute animals. The godlike intellect, of whose achievements we are now so justly proud, was then being acquired by almost infinitely minute increments. In the face of the proved fact of man's immense antiquity, no other conclusion is admissible.

I have introduced these considerations, not

so much to confirm the theory of the descent of man from an ape-like animal, — which I regard as already sufficiently proved by the evidence presented in the ninth chapter, — as to illustrate the true point of view from which the evolution of humanity should be regarded. In treating of the Doctrine of Evolution in general we saw it to be a corollary from the persistence of force that the process of evolution, which at first goes on with comparative slowness, must, owing to the multiplication of effects, go on with increasing rapidity.[1] We have seen, besides, that those most conspicuous aspects of evolution which consist in increase of definite complexity in structure and function must be much more conspicuous in the more compound than in the more simple kinds of evolution. In illustration of these closely allied truths, we may note that in all cases a long period of time elapses before any lower order of evolution gives rise to a distinctly higher order. Long ages must have passed before the slow integration of our solar nebula into a planetary system resulted in the appearance of distinctly geologic phenomena upon the several planets. Again, it was a long time before geologic evolution had proceeded sufficiently far to admit of the evolution of life — upon Saturn and Jupiter, as we

[1] See above, vo.. ii. p. 246. This was also hinted at the close of the chapter on Life as Adjustment.

have seen, the genesis of anything like what we know as life would appear still to be impossible. Again, after the first appearance of life upon our earth, a long time must have elapsed before protists, simple plants, and nerveless animals were succeeded by animals sufficiently complex to manifest even the most rudimentary phases of psychical life. And again, as we can now see, the evolution of physical and psychical life to the very high degree exemplified in the primeval ape-like man was followed by a somewhat long period, during which the still higher psychical changes constituting social evolution were slowly assuming their distinctive characteristics.

Social evolution therefore, regarded as a complicated series of intellectual and emotional changes determined by the aggregation of men into communities, is a new order of evolution, more highly compounded than any that had gone before it. When, in the course of the struggle for existence, men began to unite in family groups of comparatively permanent organization, a new era was begun in the progress of things upon the earth's surface. A new set of structural and functional changes began, which for a long while proceeding with the slowness characteristic of the early stages of every order of evolution, are at last proceeding with a rapidity only to be slackened when some pe-

nultimate stage of equilibrium is approached. Hence it is in the highest degree unphilosophical to attempt to explain the present position of civilized man solely by reference to the laws of organic and psychical evolution as obtained by the study of life in general. It is for biology to explain the differences between the human hand and foot and the hands and feet of the other primates;[1] but the chief differences between civilized man and the other members of the order to which he belongs are psychological differences, and the immense series of psychical changes to which they are due has been all along determined by social conditions.

The all-important contrast, therefore — for our present purpose — *is not between man and other primates, extinct and contemporary, but between civilized man and primitive man.* Already we have found that the lowest contemporary man, whose social organization has never reached any higher form than that of the simplest tribal community, exhibits but scanty traces of the godlike intellect, the refined tastes, or the lofty soul which we are accustomed to ascribe to humanity in general as its distinctive attributes. Humanity, zoölogically considered, exists today, to which these attributes cannot be ascribed without a considerable strain upon the accepted

[1] See Professor Huxley's admirable monograph on *Man's Place in Nature.*

meanings of our words. Zoölogically, the Australian belongs to the genus *Homo*, and is therefore nearer to us than to the gorilla or gibbon; psychologically, he is in many respects further removed from us than from these man-like apes. No one will deny that the intellectual progress implied in counting up to five or six, though equally important, is immeasurably inferior in quantity to the subsequent progress implied in the solution of dynamical problems by means of the integral calculus, — an achievement to which the average modern engineer is competent. But in going back to the primeval man we must descend to a lower grade of intelligence than that which is occupied by the Australian. We must traverse the immensely long period during which the average human skull was enlarging from a capacity of thirty-five inches, like that of the highest apes, to a capacity of seventy inches, like those post-glacial European skulls of which the one found at Neanderthal is a specimen, and which are about on a par with the skulls of Australians. And when we have reached the beginning of this period — possibly in the Miocene epoch — we may fairly represent to ourselves the individuals of the human genus as animals differing in little save a more marked sociality from the dryopithecus and other extinct half-human apes. We may represent primitive man as an animal in

whom, physical and psychical changes having hitherto proceeded *pari passu*, intelligence had at length arrived at a point where variations in it would sooner be seized on by natural selection than variations in physical structure. When among primates possessed of such an intelligence, the family groups temporarily formed among all mammals began to become permanent, then we must say that there began the career of humanity as distinguished from animality. For countless ages our ancestors probably were still but slightly distinguished from other primates, save that their increasing intelligence, their use of weapons, and their habits of combination, rendered them more than a match for much larger and stronger animals. In the later Pliocene times these primitive men may have come to bear some resemblance to the lowest contemporary savages. Human remains and relics of the still later glacial period supply clear proof of such a resemblance; yet the absence of any improvement in weapons and implements for many ages longer shows that as yet there was but little capability of progress. Of the career of mankind during the eight hundred thousand years which would seem to have elapsed since the era of the cave bear and woolly rhinoceros,[1] we possess many vestiges. But

[1] In assigning this conjectural date, I follow the theory which connects the great glacial epoch with that notable in-

everything indicates the most extreme barbarism; nowhere does there appear a trace of anything like even the rudest civilization, until we reach that comparatively recent epoch antecedent to the dawn of history, but accessible to philology. The partial restoration of the Aryan mother tongue enables us to go back perhaps a dozen or fifteen centuries beyond the age of Homer and the Vedas, and catch a few glimpses of the prehistoric Aryans, — an agricultural race completely tribal in organization, but acquainted with the use of metals, and show-

crease in the eccentricity of the earth's orbit, which, as calculated by Mr. Croll, began about 950,000 years B. C., and lasted 200,000 years. But while the fact of this great increase of eccentricity is, I presume, well established, and while it can hardly fail to have wrought marked climatic changes, it is by no means proved that the glaciation of Europe and North America was produced solely or chiefly by this circumstance; and accordingly I do not care to insist upon the chronology which I have adopted in the text. Nor is it necessary for the validity of my argument that it should be insisted on. What we do know is, that men existed both in Europe and in North America at the beginning of the glacial period; that this extensive dispersal implies the existence of the human race for a long time previous to this epoch; and that thus we obtain a dumb antiquity in comparison with which the whole duration of the voice of historic tradition shrinks to a mere point of time. And this is all that my argument requires. [See the essay II. in the *Excursions of an Evolutionist*, on "The Arrival of Man in Europe." The theory here in question has since been much controverted.]

ing marks of an intelligence decidedly above that of high contemporary barbarians like the Kaffirs. At the same time the deciphering of hieroglyphics on Egyptian monuments reveals to us the existence in the valley of the Nile of an old and immobile civilization, organized on a tribal basis, like that of China, already sinking in political decrepitude at the ill-defined era at which we first catch sight of it. Of the beginnings of civilization on the Nile, and also indeed on the Euphrates, and of the stages by which the Aryans arrived at the intellectual preëminence to which their recovered language bears witness, we know absolutely nothing. But even if we were to allow twenty thousand years for these proceedings, — an interval nearly seven times as long as that which separates the Homeric age from our own time, — we should obtain but a brief period compared with the countless ages of unmitigated barbarism which preceded it. The progress of mankind is like a geometrical progression. For a good while the repeated doubling produces quite unobtrusive results; but as we begin to reach the large numbers the increase suddenly becomes astonishing. Since the beginning of recorded history we have been moving among the large numbers, and each decade now witnesses a greater amount of psychical achievement than could have been witnessed in thousands of years among pre-glacial men.

Such a result is just what the Doctrine of Evolution teaches us to anticipate — and it thoroughly confirms our statement that, in point of intelligence and capacity for progress, the real contrast is not between all mankind and other primates, but between civilized and primeval man.

Let us now consider some of the leading characteristics of this gradual but increasingly rapid intellectual progress, regarded as a growing correspondence between the human mind and its environment.

In the second chapter of our Prolegomena it was shown that the highest kinds of scientific knowledge differ only in degree from the lowest kinds of what is called ordinary knowledge. In spite of their great differences in mental capacity, it is obvious that the antelope who on hearing a roar from the neighbouring thicket infers that it is high time to run for his life, the Bushman who on seeing the torn carcase of the antelope infers that a lion has recently been present, and the astronomer who on witnessing certain unforeseen irregularities in the motions of Uranus infers that an unknown planet is attracting it, perform one and all the same kind of mental operation. In the three cases the processes are fundamentally the same, though differing in complexity according to the number and remoteness of the past and present relations

which are compared. In each case the process is at bottom a grouping of objects and of relations according to their likenesses and unlikenesses. It was similarly shown that all knowledge is a classification of experiences, and that every act of knowledge is an act of classification; that an act of *inference*, such as is involved in simple cases of perception, is "the attributing to a body, in consequence of some of its properties, all those properties by virtue of which it is referred to a particular class;" that the "forming of a *generalization* is the putting together in one class all those cases which present like relations;" and that "the drawing a *deduction* is essentially the perception that a particular case belongs to a certain class of cases previously generalized. So that, as ordinary classification is a grouping together of *like things;* reasoning is a grouping together of *like relations* among things."[1] In this fundamental doctrine the two different schools of modern psychology, represented respectively by Mr. Bain and Mr. Mansel, will thoroughly agree. But from this it inevitably follows that the highest and the lowest manifestations of intelligence consist respectively of processes which differ only in heterogeneity and definiteness and in the extent to which they are compounded.

[1] Spencer's *Essays*, 1st series, p. 189 [Library Edition, vol. ii. p. 33]; see above, Part I. chap. ii.; Part II. chap. xv.

But while proving that science is but an extension of ordinary knowledge, it was also proved that the higher orders of knowledge differ from the lower in the greater remoteness, generality, and abstractness of the relations which they formulate, in the greater definiteness of their formulas, and in their more complete organization. Our inquiry into the mutual relations of life and intelligence [1] elicited an exactly parallel set of conclusions. It was there shown that psychical life consists in the continuous establishment of subjective relations answering to objective relations; and that, as we advance through the animal kingdom from the lowest to the highest forms, this correspondence between the mind and the environment extends to relations which are continually more remote in space and time, more clearly defined, but at the same time more general; and finally we also traced a progressive organization of correspondences. Continually, while passing in review the various aspects of the progress of intelligence in the animal kingdom, we found ourselves ending with illustrations drawn from that progress of human intelligence which is determined by social conditions. Let us now illustrate this subject somewhat further by tracing out the intellectual correspondence between man and his environment — as increasing in

[1] See above, Part II. chap. xiv.

remoteness, in speciality and generality, in complexity, in definiteness, and in coherent organization.

The extension of the correspondence in space is a marked characteristic of intellectual progress, which we have already traced through the ascending groups of the animal kingdom, but which is carried much further by man than by any lower animal. It is no doubt true that the direct adjustments of psychical relations to distant objective relations, effected by unaided perception, have a narrower range in civilized men than in uncivilized men or in several of the higher mammals and birds. It is a familiar fact that the senses of civilized man — or at least the three senses which have a considerable range in space — are less acute and less extensive in range than those of the barbarian. It is said that a Bushman can see as far with the naked eye as a European can see with a field-glass; and certain wild and domestic birds and mammals, as the falcon, the vulture, and perhaps the greyhound, have still longer vision. Among the different classes of civilized men, those who, by living on the fruits of brain work done indoors, are most widely differentiated from primeval men, have as a general rule the shortest vision. And the rapid increase of indoor life, which is one of the marked symptoms of modern civilization, tends not only to make myopia more

frequent, but also to diminish the average range of vision in persons who are not myopic. There may very likely have been a similar, though less conspicuous and less carefully observed, decrease in the range of hearing. And the sense of smell, which is so marvellously efficient in the majority of mammals and in many savages, is to us of little use as an aid in effecting correspondences in space.

In the case also of those simpler indirect adjustments which would seem, perhaps, to involve the use of the cerebellum chiefly, we have partially lost certain powers possessed by savages and lower animals. There are few things in which civilized men differ among themselves more conspicuously than in the recollection of places, the identification of landmarks, and the ability to reach a distant point through crooked streets without losing the way. But in these respects the most sagacious of us are but bunglers compared with primitive men or with dogs and foxes. Few things are more striking than the unerring instinct with which the Indian makes his way through utterly trackless forests, seldom stopping to make up his mind, and taking in at a single glance whole groups of signs which to his civilized companion are inappreciable. The loss of this power of coördination, like the decrease in the range of the senses, is undoubtedly due to disuse, the circumstances

of civilized life affording little or no occasion for the exercise of these faculties.[1]

But although in these respects the correspondence in space does not seem to have been extended with the progress of civilization, yet in those far more indirect and complicated adjustments which, as involving time relations of force and cause, depend largely on the aid of the cerebrum, the civilized man surpasses the savage to a much greater extent than the savage surpasses the wolf or lion. "By combining his own perceptions with the perceptions of others as registered in maps," the modern "can reach special places lying thousands of miles away over the earth's surface. A ship, guided by compass and stars and chronometer, brings him from the antipodes information by which his purchases here are adapted to prices there. From the characters of exposed strata he infers the presence of coal below; and thereupon adjusts the se-

[1] In the course of the recent interesting discussion and correspondence in *Nature* concerning the "sense of direction" exhibited in barbarians and lower animals, it was observed that a party of Samoyeds will travel in a direct line from one point to another over trackless fields of ice, even on cloudy nights, when there is accordingly nothing whatever that is visible to guide their course. It would be too much to assert that this faculty is utterly lost in civilized man, so that a temporary recurrence to the conditions of barbaric life might not revive it; but even if retained at all, it is certainly kept quite in abeyance.

quences of his actions to coexistences a thousand feet beneath. Nor is the environment through which his correspondences reach, limited to the surface and the substance of the earth. It stretches into the surrounding sphere of infinity." In all these respects, the extension of the correspondence achieved during the progress of civilization has been much greater than that achieved during the immediately preceding stages of the evolution of man from an inferior primate. "From early races acquainted only with neighbouring localities, up to modern geographers who specify the latitude and longitude of every place on the globe; from the ancient builders and metallurgists, knowing but surface deposits, up to the geologists of our day whose data in some cases enable them to describe the material existing at a depth never yet reached by the miner; from the savage barely able to say in how many days a full moon will return, up to the astronomer who ascertains the period of revolution of a double star, — there has been" an enormous "widening of the surrounding region throughout which the adjustment of inner to outer relations extends." [1] It only remains to add that the later and more conspicuous stages of this progress have been determined by that increase in the size and heterogeneity of the so-

[1] Spencer, *Principles of Psychology*, vol. i. pp. 317, 319. [Part III. chap. iv. § 144.]

cial environment which results from the growing interdependence of communities once isolated, and which we have already seen to be the fundamental element of progress in general. For this integration of communities has not only directly enlarged the area throughout which adjustments are required to be made, but it has indirectly aided the advances in scientific knowledge requisite for making the adjustments.

Great, however, as has been the extension of the correspondence in space which has characterized the progress of the favoured portion of humanity from barbarism to civilization, the extension of the correspondence in time is a much more conspicuous and more distinctly human phenomenon. As we trace this kind of mental evolution through sundry classes and orders of the animal kingdom in an ascending series, it is to be observed that until we reach the higher mammals the two kinds of correspondence advance together, — the distance at which outer relations are cognized forming a measure of the interval by which their effects may be anticipated. But among the higher mammals there is observed a higher order of adjustments to future emergencies, which advances more rapidly than the extension of the correspondence in space, and which in the human race first acquires a notable development. "Not that the transition is sudden," observes Mr. Spencer.

"During the first stages of human progress, the method of estimating epochs does not differ in nature from that employed by the more intelligent animals. There are historical traces of the fact that originally the civilized races adjusted their actions to the longer sequences in the environment just as Australians and Bushmen do now, by observing their coincidence with the migrations of birds, the floodings of rivers, the flowerings of plants. And it is obvious that the savages who, after the ripening of a certain berry, travel to the seashore, knowing that they will then find a particular shellfish in season, are guided by much the same process as the dog who, on seeing the cloth laid for dinner, goes to the window to watch for his master. But when these phenomena of the seasons are observed to coincide with recurring phenomena in the heavens, — when, as was the case with the aboriginal Hottentots, periods come to be measured partly by astronomical and partly by terrestrial changes, — then we see making its appearance a means whereby the correspondence in time may be indefinitely extended. The sun's daily movements and the monthly phases of the moon having once been generalized, and some small power of counting having been reached, it becomes possible to recognize the interval between antecedents and consequents that are long apart,

and to adjust the actions to them. Multitudes of sequences in the environment which, in the absence of answering functional periods, cannot be directly responded to by the organism, may be discerned and indirectly responded to when there arises this ability of numbering days and lunations."[1]

In the advance to high stages of civilization, the extension of the correspondence in time is most conspicuously exemplified in the habitual adjustment of our theories and actions to sequences more or less remote in the future. In no other respect is civilized man more strikingly distinguished from the barbarian than in his power to adapt his conduct to future events, whether contingent or certain to occur. The ability to forego present enjoyment in order to avoid the risk of future disaster is what we call prudence or providence; and the barbarian is above all things imprudent and improvident. Doubtless the superior prudence of the civilized man is due in great part to his superior power of self-restraint; so that this class of phenomena may be regarded as illustrating one of the phases of moral progress. Nevertheless there are several purely intellectual elements which enter as important factors into the case. The power of economizing in harvest-time or in youth, in order to retain something upon which to live

[1] Spencer, op. cit. i. 326. [§ 149.]

comfortably in winter or in old age, is obviously dependent upon the vividness with which distant sets of circumstances can be pictured in the imagination. The direction of the volitions involved in the power of self-restraint must be to a great extent determined by the comparative vividness with which the distant circumstances and the present circumstances are mentally realized. And the power of distinctly imagining objective relations not present to sense is probably the most fundamental of the many intellectual differences between the civilized man and the barbarian, since it underlies both the class of phenomena which we are now considering, and the class of phenomena comprised in artistic, scientific, and philosophic progress. The savage, with his small and undeveloped cerebrum, plays all summer, like the grasshopper in the fable, eating and wasting whatever he can get; for although he knows that the dreaded winter is coming, during which he must starve and shiver, he is nevertheless unable to realize these distant feelings with sufficient force to determine his volition in the presence of his actual feeling of repugnance to toil. But the civilized man, with his large and complex cerebrum, has so keen a sense of remote contingencies that he willingly submits to long years of drudgery, in order to avoid poverty in old age, pays out each year a portion of his hard-

earned money to provide for losses by fire which may never occur, builds houses and accumulates fortunes for posterity to enjoy, and now and then enacts laws to forestall possible disturbances or usurpations a century hence. Again, the progress of scientific knowledge, familiarizing civilized man with the idea of an inexorable regularity of sequence among events, greatly assists him in the adjustment of his actions to far-distant emergencies. He who ascribes certain kinds of suffering to antecedent neglect of natural laws is more likely to shape his conduct so as to avoid a recurrence of the infliction, than he who attributes the same kinds of suffering to the wrath of an offended quasi-human Deity, and fondly hopes, by ceremonial propitiation of the Deity, to escape in future.

This power of shaping actions so as to meet future contingencies has been justly recognized by political economists as an indispensable prerequisite to the accumulation of wealth in any community, without which no considerable degree of progress can be attained. The impossibility of getting barbarians to work, save under the stimulus of actually present necessities, has been one of the chief obstacles in the way of missionaries who have attempted to civilize tribal communities. The Jesuits, in the seventeenth century, were the most successful of Christian missionaries, and their proceedings

with the Indians of Paraguay constitute one of the most brilliant feats in missionary annals. Such unparalleled ascendency did the priests acquire over the imaginations of these barbarians that they actually made them cease from warfare. They taught them European methods of agriculture, as well as the arts of house-building, painting, dyeing, furniture-making, even the use of watches; and they administered the affairs of the community with a despotic power which has seldom been equalled either in absoluteness or in beneficence. Nevertheless the superficiality of all this show of civilization was illustrated by the fact that, unless perpetually watched, the workmen would go home leaving their oxen yoked to the plough, or would even cut them up for supper if no other meat happened to be at hand. Examples of a state of things intermediate between this barbaric improvidence and the care-taking foresight of the European are to be found among the Chinese, — a people who have risen far above barbarism, but whose civilization is still of a primitive type. The illustration is rendered peculiarly forcible by the fact that the Chinese are a very industrious people, and where the returns for labour are immediate will work as steadily as Germans or Americans. Owing to their crowded population, every rood of ground is needed for cultivation, and upon their great

rivers the traveller continually meets with little floating farms constructed upon rafts and held in place by anchors. Yet side by side with these elaborate but fragile structures are to be seen acres of swamp land which only need a few years of careful draining to become permanently fit for tillage. So incapable are the Chinese of adapting their actions to sequences at all remote, that they continue, age after age, to resort to such temporary devices, rather than to bestow their labour where its fruits, however enduring, cannot be enjoyed from the outset.[1] The contrast proves that the cause is the intellectual inability to realize vividly a group of future conditions, involving benefits not immediately to be felt.

Of the correspondence in time, even more forcibly than of the correspondence in space, it may be said that its extension during the process of social evolution has been much greater than during the organic evolution of the human race from some ancestral primate. Between the Australian, on the one hand, who cannot estimate the length of a month, or provide even for certain disaster which does not stare him in the face, and whose theory of things is adapted only to events which occur during his own lifetime, — and, on the other hand, the European, with his practical foresight, his elaborate scien-

[1] See Mill, *Political Economy*, Book I. chap. xi.

tific previsions, and his systems of philosophy, which embrace alike the earliest traceable cosmical changes and the latest results of civilization, — the intellectual gulf is certainly far wider than that which divides the Australian from the fox who hides the bird which he has killed, in order to return when hungry to eat it.

It remains to add that the later and more conspicuous stages of this kind of intellectual progress have obviously been determined by the increase in the size and heterogeneity of the social environment. For the integration of communities to which this increase is due has not only indirectly aided the advances in scientific knowledge requisite for making mental adjustments to long sequences, past and future, but it has also directly assisted the disposition to work patiently in anticipation of future returns, by increasing the general security and diminishing the chances that the returns to labour may be lost.

The extension of the correspondence between subjective and objective relations in time and in space answers to that kind of primary integration which underlies the process of evolution in general. In treating of the enlarged area, in time and space, throughout which inner relations are adjusted to outer relations, we have been treating of intellectual progress regarded as a growth. But in proceeding to speak of the in-

creasing heterogeneity, definiteness, and coherence of the adjustments, we proceed to treat of intellectual progress regarded as a development. Here, as elsewhere, throughout all save the simplest orders of evolution, quantitative increase is accompanied by qualitative increase. The knowledge is not only greater and the intellectual capacity greater, but the knowledge is more complex, accurate, and unified, and the intellectual capacity is more varied.

The increase of the correspondence in definiteness may be sufficiently illustrated by the following brief citation from Mr. Spencer: "Manifestly the reduction of objective phenomena to definite measures gives to those subjective actions that correspond with them a degree of precision, a special fitness, greatly beyond that possessed by ordinary actions. There is an immense contrast in this respect between the doings of the astronomer who, on a certain day, hour, and minute, adjusts his instrument to watch an eclipse, and those of the farmer who so arranges his work that he may have hands enough for reaping some time in August or September. The chemist who calculates how many pounds of quicklime will be required to decompose and precipitate all the bicarbonate of lime which the water in a given reservoir contains in a certain percentage, exhibits an adjustment of inner to outer relations incomparably

more specific than does the laundress who softens a tubful of hard water by a handful of soda. In their adaptations to external coexistences and sequences, there is a wide difference between the proceedings of ancient besiegers, whose battering-rams were indeterminate in their actions, and those of modern artillery officers, who, by means of a specific quantity of powder, consisting of specific ingredients, in specific proportions, placed in a tube at a specific inclination, send a bomb of specific weight on to a specific object, and cause it to explode at a specific moment."[1] It only remains to note that the difference in specific accuracy, here illustrated by contrasting the operations of science with those of ordinary knowledge, is equally conspicuous when, on a somewhat wider scale, we contrast the proceedings, both scientific and artistic, of civilized men with the proceedings of the lowest savages. The most ignorant man in New England probably knows in June that winter is just six months distant; the Australian, to whom, as to the civilized child, time appears to go slowly, knows only that it is a long way off. So, too, the crude knives and hammers and the uncouth pottery of primeval men are distinguished alike by their indefiniteness of contour, and by their uselessness in operations which require specific accuracy. And here, as before, in the extreme

[1] Spencer, op. cit. i. 340. [§ 155.]

vagueness and lack of speciality, both in his knowledge and in the actions which are guided by it, the primeval man appears to stand nearer to the highest brutes than to the civilized moderns.

Along with this increase in specialization, entailing a greater definiteness of adjustment, there goes on an increase in generalization, involving an increased power of abstraction, of which barely the germs are to be found either in the lowest men or in other highly organized mammals. The inability of savage races to make generalizations involving any abstraction is sufficiently proved by the absence or extreme paucity of abstract expressions in their languages. As Mr. Farrar observes, " The Society Islanders have words for dog's tail, bird's tail, and sheep's tail, yet no word for tail ; the Mohicans have verbs for every kind of cutting, and yet no verb 'to cut.' The Australians have no generic term for fish, bird, or tree. The Malays have no term for tree or herb, yet they have words for fibre, root, tree-crown, stalk, stock, trunk, twig, and shoot. Some American tongues have separate verbs for 'I wish to eat meat,' and 'I wish to eat soup,' but no verb for 'I wish ;' and separate words for a blow with a sharp and a blow with a blunt instrument, but no abstract word for blow." [1] Between the stage

[1] *Chapters on Language*, p. 199.

of intellectual progress thus illustrated and that in which an unlimited capacity for generalization produces such words as "individuation" or "equilibration," the contrast is sufficiently obvious — and it fully confirms our theorem that the amount of intellectual progress achieved since man became human far exceeds that which was needed to transfer him from apehood to manhood.

The increase of the correspondence in complexity, already illustrated incidentally in the treatment of these other aspects of the case, is still further exemplified in the growing complication of the interdependence between science and the arts. When tracing the complexity of correspondence through the lower stages of the evolution of intelligence in the animal kingdom, Mr. Spencer hints that the evolution of the executive faculties displayed in the organs of prehension and locomotion is closely related to that of the directive faculties displayed in the cephalic ganglia and in the organs of sense. The parallelism may be summed up in the statement that in most, if not all, the principal classes of the animal kingdom, the animals with the most perfect prehensile organs are the most intelligent. Thus the cuttle-fish is the most intelligent of mollusks, and the crab similarly stands at the head of crustaceans, while the parrot outranks all other birds alike in sa-

gacity and in power of handling things, and the ape and elephant are, with the exception of man, the most sagacious of mammals.[1] Of the human race, too, it may be said that, although Anaxagoras was wrong in asserting that brutes would have been men had they had hands, he might safely have asserted that without hands men could never have become human. Now this interdependence of the directive and executive faculties is continued throughout the process of social evolution in the shape of the interdependence of the sciences and the arts. "We may properly say that, in its higher forms, the correspondence between the organism and its environment is effected by means of supplementary senses and supplementary limbs. . . . The magnifying glass adds but another lens to the lenses existing in the eye. The crowbar is but one more lever attached to the series of levers forming the arm and hand. And the relationship, which is so obvious in these first steps, holds throughout." We may indeed go still deeper, and say that science is but an extension of our ordinary sense perceptions by the aid of reasoning, while art is but an extension of the ordinary function of our muscular system, of expressing our psychical states by means of motion. Hence it is that "each great step towards a knowledge of laws has facilitated men's operations on

[1] Spencer, op. cit. i. 368–372. [§ 165.]

things ; while each more successful operation on things has, by its results, facilitated the discovery of further laws." Hence the sciences and arts, originating together, — as in the cases of "astronomy and agriculture, geometry and the laying out of buildings, mechanics and the weighing of commodities," — have all along reacted upon each other, in an increasing variety of ways. It is sufficient to mention the reciprocal connections between navigation and astronomy, between geology and mining, between chemistry and all the arts ; while telescopes and microscopes illustrate the truth that "there is scarcely an observation now made in science, but what involves the use of instruments supplied by the arts ; while there is scarcely an art process but what involves some of the previsions of science." Just as in organic evolution we find the mutual dependence of the directive and executive faculties ever increasing, so that "complete visual and tactual perceptions are impossible without complex muscular adjustments, while elaborate actions require the constant overseeing of the senses," so in social evolution we find between science and art an increasing reciprocity "such that each further cognition implies elaborate operative aid, and each new operation implies sundry elaborate cognitions." I need only add that, in this as in the other aspects of intellectual progress, the increase in complexity of ad-

justment achieved during the process of social evolution is far greater than that achieved during the immediately preceding stages of the process of organic evolution. Between the ape and the primitive man, with his rude levers and hatchets and his few simple previsions, the difference in complexity of correspondence is obviously less than between the primitive man and the modern, with his steam-hammers and thermo-electric multipliers, and his long list of sciences and sub-sciences, any one of which it would take much more than a lifetime to master in detail.

We have thus passed in review the various aspects of intellectual progress, regarded as a process of adjustment of inner to outer relations, and we have seen that in all the most essential features of this progress there is a wider difference between the civilized man and the lowest savage than between the savage and the ape. It appears that those rare and admirable qualities upon which we felicitate ourselves as marks which absolutely distinguish us from the brute animals have been slowly acquired through long ages of social evolution, and are shared only to a quite insignificant extent by the lowest contemporary races of humanity. As long as we regard things statically, as forever fixed, we may well imagine an impassable gulf between ourselves and all other forms of

organic existence. But as soon as we regard things dynamically, as forever changing, we are taught that the gulf has been for the most part established during an epoch at the very beginning of which we were zoölogically the same that we now are.

The next step in our argument will be facilitated by an inquiry into the common characteristic of the various intellectual differences between the civilized and the primitive man which we have above enumerated. The nature of this characteristic was hinted at when we were discussing the improvidence of the barbarian. It was observed that the power of distinctly imagining objective relations not present to sense is the most fundamental of the many intellectual differences between the civilized man and the barbarian. Making this statement somewhat wider, we may now safely assert that the entire intellectual superiority of the civilized man over the savage, or of the modern man over the primeval man, is summed up in his superior power of *representing* that which is not present to the senses. For it is not only in what we call providence that this superiority of representation shows itself, but also in all those combinations of present with past impressions which accompany the extension of the correspondence in space and time, and its increase in heterogeneity, definiteness, and coherence. It is his ability to

reproduce copies of his own vanished states of consciousness, and of those of his fellows, that enables the civilized man to adjust his actions to sequences occurring at the antipodes. It is this same power of representation which underlies his power of forming abstract and general conceptions. For the peculiarity of abstract conceptions is that "the matter of thought is no longer any one object, or any one action, but a trait common to many;" and it is, therefore, only when a number of distinct objects or relations possessing some common trait can be represented in consciousness that there becomes possible that comparison which results in the abstraction of the common trait as the object of thought. Obviously, then, the greater the power of abstraction and generalization which is observed, the greater is the power of representation which is implied. The case is the same with that definiteness of the intellectual processes which we have noted as distinguishing modern from primitive thinking. For the conception which underlies definiteness of thinking is the conception of *exact likeness*, — a highly abstract conception which can only be framed after the comparison of numerous represented cases in which degree of likeness is the common trait that is thought about. Hence not only the improvidence of the savage, but likewise the vagueness of his conceptions, his in-

ability to form generalizations involving abstraction, and the limited area covered by his adjustments, are facts which one and all find their ultimate explanation in his relative incapacity for calling up representative states of consciousness.

From this same incapacity results that inflexibility of thought in which the savage resembles the brute, and which is one of the chief proximate causes of his unprogressiveness. "One of the greatest pains to human nature," says Mr. Bagehot, "is the pain of a new idea." This pain, which only to a few of the most highly cultivated minds in the most highly civilized communities has ceased to be a pain and become a pleasure, is to the savage not so much a pain as a numbing or paralyzing shock. To rearrange the elements of his beliefs is for the uncivilized man an almost impossible task. It is not so much that he does not dare to sever some traditional association of ideas which he was taught in childhood, as it is that he is incapable of holding together in thought the clusters of representations with the continuity of which the given association is incompatible. This important point is so ably and succinctly stated by Mr. Spencer, that I cannot do better than to quote his exposition entire. After reminding us that "mental evolution, both intellectual and emotional, may be measured by the degree of

remoteness from primitive reflex action," Mr. Spencer observes that " in reflex action, which is the action of nervous structures that effect few, simple, and often repeated coördinations, the sequent nervous state follows irresistibly the antecedent nervous state — and does this not only for the reason that the discharge follows a perfectly permeable channel, but also for the reason that no alternative channel exists. From this stage, in which the psychical life is automatically restrained within the narrowest limits, up through higher stages in which increasing nervous complexities give increasing varieties of actions and possibilities of new combinations, the process continues the same ; and it continues the same as we advance from the savage to the civilized man. For where the life furnishes relatively few and little varied experiences, where the restricted sphere in which it is passed yields no sign of the multitudinous combinations of phenomena that occur elsewhere, the thought follows irresistibly one or other of the few channels which the experiences have made for it, — cannot be determined in some other direction for want of some other channel. But as fast as advancing civilization brings more numerous experiences to each man, as well as accumulations of other men's experiences, past and present, the ever multiplying connections of ideas that result imply ever multiplying possibilities of thought.

The convictions throughout a wide range of cases are rendered less fixed. Other causes than those which are usual become conceivable; other effects can be imagined; and hence there comes an increasing modifiability of opinion. This modifiability of opinion reaches its extreme in those most highly cultured persons whose multitudinous experiences include many experiences of errors discovered, and whose representativeness of thought is so far-reaching that they habitually call to mind the various possibilities of error, as constituting a general reason for seeking new evidence and subjecting their conclusions to revision.

"If we glance over the series of contrasted modes of thinking which civilization presents, beginning with the savage who, seized by the fancy that something is a charm or an omen, thereafter continues firmly fixed in that belief, and ending with the man of science whose convictions, firm where he is conscious of long-accumulated evidence having no exception, are plastic where the evidence though abundant is not yet overwhelming, we see how an increase in freedom of thought goes along with that higher representativeness accompanying further mental evolution."[1]

If now we inquire for a moment into the causes of this higher representativeness of civi-

[1] Spencer, op. cit. ii. 524. [§ 486, Part VIII. chap. iii.]

lized thinking, we shall see most beautifully exemplified the way in which intellectual progress, as it goes on in the human race, is determined by social evolution. Intellectual progress is indeed a cause as well as a consequence of the evolution of society; but amid the dense entanglement of causes and effects our present purpose requires us to single out especially the dependence of progress in representativeness upon social complexity, since herein will be found the secret of the mental preëminence of civilized man. Now the integration of small tribes into larger and more complex social aggregates, which is the fundamental phenomenon in civilization, tends directly to heighten representativeness of thinking by widening and varying the experiences of the members of society. The member of a savage tribe must think indefinitely, concretely, rigidly, improvidently, because his intellectual experiences are so few in number and so monotonous in character. Increase in social complexity renders possible, or indeed directly produces, fresh associations of ideas in greater and greater variety and abundance, so that the decomposition and recombination of thoughts involved in abstraction and generalization is facilitated; and along with this, the definiteness and the plasticity of thought is increased, and the contents of the mind become representative in higher and higher degrees. Thus in every way

it is brought before us that sociality has been the great agent in the achievement of man's intellectual preëminence, and that it has operated by widening and diversifying human experience, or in other words by increasing the number, remoteness, and heterogeneity of the environing relations to which each individual's actions have had to be adjusted. An inquiry into the genesis of sociality will therefore best show us how the chasm which divides man intellectually from the brute is to be crossed.

But before we proceed to this somewhat lengthy and circuitous inquiry, we may profitably contemplate under a new aspect the intellectual difference which we have assigned as the fundamental one between civilized and primeval man. We have observed that the intellectual superiority of man over brute and of the civilized man over the barbarian essentially consists in a greater capacity for mentally representing objects and relations remote from sense. And we have insisted upon the point that in this capacity of representation the difference between the highest and lowest specimens of normal humanity known to us far exceeds the difference between the lowest men and the highest apes. Now in closest connection with these conclusions stands the physical fact that the chief structural difference between man and ape, as also between civilized and uncivilized man, is the difference in size and

complexity of cerebrum. The cerebrum is the organ especially set apart for the compounding and recompounding of impressions that are not immediately sensory. The business of coördinating immediately presentative impressions is performed by the medulla and other subordinate centres. The cerebrum is especially the organ of that portion of psychical life which is entirely representative.[1] Obviously, then, the progress to higher and higher representativeness ought to be accompanied by a well-marked growth of the cerebrum relatively to the other parts of the nervous system. Now, in the light of the present argument, how significant is the fact that the cranial capacity of the modern Englishman surpasses that of the aboriginal non-Aryan Hindu by a difference of sixty-eight cubic inches,[2] while between this Hindu skull and the skull of the gorilla the difference in capacity is but eleven cubic inches! That is to say, the difference in volume of brain between the highest and the lowest man is at least six times as great as the difference between the lowest man and the highest ape. And if we were to take into the account the differences in structural complexity, as indicated by the creasing and furrowing of the brain surface, we should obtain a yet more astonishing contrast. Yet

[1] See above, vol. iii. pp. 201, 202.

[2] Lyell, *Antiquity of Man*, p. 84.

powerfully as this anatomical fact confirms the position we have all along been upholding, its full value will not be apparent if we are so dazzled by it as to overlook the significance of the lesser difference between the gorilla and the aboriginal inhabitant of India. As the Duke of Argyll very properly observes, we do right in setting a higher value in classification upon the eleven inches which intervene between the gorilla and the Hindu than upon the sixty-eight inches which intervene between the Hindu and the Englishman. For "the significance set by the facts of nature upon that difference of eleven cubic inches . . . is the difference between an irrational brute confined to some one climate and to some limited area of the globe, — which no outward conditions can modify or improve, — and a being equally adapted to the whole habitable world, with powers, however undeveloped, of comparison, of reflection, of judgment, of reason, with a sense of right and wrong, and with all these capable of accumulated acquisition, and therefore of indefinite advance." Though somewhat exaggerated in what it denies to the brute, and much more in what it claims for the aboriginal man, this statement contains a kernel of truth which is of value for our present purpose, and which is further illustrated by the fact that a minimum of brain substance "is constantly and uniformly associated with all the

other anatomical peculiarities of man. Below that minimum the whole accompanying structure undergoes far more than a corresponding change, — even the whole change between the lowest savage and the highest ape. Above that minimum, all subsequent variations in quantity are accompanied by no changes whatever in physical structure."[1] Here again, though the antithesis is a little too absolutely stated, we have set before us a real distinction. Up to a certain point, the brain and the rest of the body are alike alterable by natural selection and such other agencies as may be concerned in the slow modification of organisms. But when the brain has reached a certain point in size and complexity, the rest of the body ceases to change, save in a few slight particulars, and the agencies concerned in forwarding the process of evolution seem to confine themselves to the brain, and especially to the cerebrum, — the result being marked psychical development, unattended by any notable physical alteration. Here we have reached a fact of prime importance. We may grant to the Duke of Argyll that when those eleven additional cubic inches of brain had been acquired, some kind of a Rubicon had been crossed, and a new state of things inaugurated. What was that Rubicon?

The answer has been furnished by Mr. Wal-

[1] Duke of Argyll, *Primeval Man*, pp. 57–64.

lace, and must rank as one of the most brilliant contributions ever yet made to the Doctrine of Evolution. Since inferior animals respond chiefly by physical changes to changes in their environment, natural selection deals chiefly with such changes, to the visible modification of their bodily structure. In the case of sheep or bears, for instance, increased cold can only select for preservation the individuals most warmly coated; or if a race of lions, which has hitherto subsisted upon small and sluggish ruminants until these have been nearly exterminated, is at last obliged to attack antelopes and buffaloes, natural selection can only preserve the swiftest and strongest or most ferocious lions. But when an animal has once appeared, endowed with sufficient intelligence to chip a stone tool and hurl a weapon, natural selection will take advantage of variations in this intelligence, to the comparative neglect of purely physical variations. Communities whose members are best able to meet by intelligent contrivances the changes in the environment will prevail over other communities, and will also be less easily destroyed by physical catastrophes. Still more strikingly must this superior availability of variations in intelligence be exemplified when the intelligence has progressed so far as to sharpen spears, to use rude bows, to dig pitfalls, to cover the body with leaves or skins, and to strike fire by rubbing

sticks, according to the Indian version of the myth of Prometheus.

So soon, in short, as the intelligence of an animal has, through ages of natural selection and direct adaptation, become so considerable that a slight variation in it is of more use to the animal than any variation in physical structure, then such variations will be more and more constantly selected, while purely physical variations, being of less vital importance to the species, will be relatively more and more neglected. Thus, while the external appearance of such an animal, and the structure of his internal nutritive and muscular apparatus, may vary but little in many ages, his cerebral structure will vary with comparative rapidity, entailing a more or less rapid variation in intellectual and emotional attributes.

Here we would seem to have the key to the singular contrast in the relations of man to contemporary anthropoid apes. We may now understand why man differs so little, in general physical structure and external appearance, from the chimpanzee and gorilla, while, with regard to the special point of cerebral structure and its correlative intelligence, he differs so vastly from these, his nearest living congeners, and the most sagacious of animals save himself. Coupled with what we now know concerning the immense antiquity of the human race, Mr. Wallace's bril-

liant suggestion goes far to bridge over the interval, which formerly seemed so impracticable, between brute and man. If we take the thousands of centuries during which the human race has covered both the eastern and the western hemispheres, and compare with them the entire duration of recorded human history, we shall have set before us a profitable subject of reflection. *Since the period during which man has possessed sufficient intelligence to leave a traditionary record of himself is but an infinitesimal fraction of the period during which he has existed upon the earth, it is but fair to conclude that, during those long ages of which none but a geologic record of his existence remains, he was slowly* ACQUIRING *that superior intelligence which now so widely distinguishes him from all other animals.*[1] Throughout an enormous period of time, his brain structure and its correlated intellectual and emotional functions must have been constantly modified both by natural selection and by direct adaptation,

[1] The reader will not fail to note that, even were the question otherwise left open, after the conclusive evidence summarized in chapter ix., this point by itself is a point of truly enormous weight in favour of the theory of man's descent from some lower animal. Upon the theory that the human race was created by a special miraculous act, its long duration in such utter silence is a meaningless, inexplicable fact; whereas, upon the derivation theory, it is just what might be expected.

while his outward physical appearance has undergone few modifications; and of these the most striking would seem to be directly or indirectly consequent upon the cerebral changes.[1]

It is a corollary from the foregoing considerations, that no race of organisms can in future be produced through the agency of natural selection and direct adaptation, which shall be zoölogically distinct from, and superior to, the hu-

1 To the general observer, as to the anatomist, the most notable points of difference between civilized and uncivilized man, as well as between man and the chimpanzee or gorilla, are the differences in the size of the jaws and the inclination of the forehead. The latter difference is directly consequent upon increase of intelligence; and the former is indirectly occasioned by the same circumstance. For the diminution of the jaws entailed by civilization is, no doubt, primarily due to disuse; and the disuse is occasioned partly by difference in food, and partly by the employment of tools, and the consequent increased reliance upon the hands as prehensile organs. All these circumstances are the result of increased intelligence. And in addition to this, it is probable that increased frontal development has directly tended, by correlation of growth, to diminish the size of the jaws, as well as to push forward the bridge of the nose. To the increased reliance upon the hands as prehensile organs — a circumstance which we have seen to be in an especial degree characteristic of developing intelligence — is probably also due the complete attainment of the erect position of the body, already partially obtained by the anthropoid apes. Cerebral development thus accounts for all the conspicuous physical peculiarities of man except his bare skin, — a phenomenon for which no satisfactory explanation has yet been suggested.

man race. As the same causes which physically modify lower species have, for countless ages, modified man directly and greatly in intelligence and only indirectly and slightly in physical constitution, it follows that mankind is destined to advance during future ages in psychical attributes, but is likely to undergo only slight changes in outward appearance. It is by the coördination of intellectual and moral relations that man maintains himself in equilibrium with the physical, intellectual, and moral relations arising in his ever-changing environment. And hence in the future, as in the recent past, the dominant fact in the career of humanity is not physical modification, but CIVILIZATION.

Here we are brought by a new route to the verge of that theory of civilization which I have sought to elucidate in the preceding chapters. We have touched upon a grand truth, of which it would be difficult to overrate the importance. For we can now admit — not as a concession to Mr. St. George Mivart, but as a legitimate result of our own method of inquiry — that when "the totality of man's being" is taken into the account, the difference between ape and mushroom is less important than the difference between ape and man. And without conceding aught to that superlative nonsense known as the "doctrine of special creations," we may admit,

with the Duke of Argyll, that the eleven cubic inches of brain space by which the aboriginal Hindu surpasses the gorilla have a higher value, for purposes of classification, than the sixty-eight cubic inches by which the modern Englishman surpasses the Hindu. We now see what kind of a Rubicon it was which was crossed when those eleven cubic inches of brain — or even when four or five of them — had been gained. The crossing of the Rubicon was the point at which natural selection began to confine itself chiefly to variations in psychical manifestation. The ape-like progenitor of man, in whom physical and psychical changes had gone on *pari passu* for countless æons, until he had reached the grade of intelligence implied by the possession of a brain four or five inches more capacious than that of the gorilla, had now, as we may suppose, obtained a brain upon which could be devolved, to a greater and greater extent, the task of maintaining relations with the environment. Then began a new chapter in the history of the evolution of life. Henceforward the survival of the fittest, in man's immediate ancestry, was the survival of the cerebrums best able to form representative combinations. The agencies which had hitherto been at work in producing an organic form endowed with rare physical capacities now began steadfastly to la-

bour in producing a mind capable to a greater and greater extent of ideally resuscitating and combining relations not present to the senses.

But immense as was the step thus achieved in advance, the progress from brute to man was not yet accomplished. As we have already shown, the circumstances which by widening and diversifying experience have mainly contributed to heighten man's faculty of representativeness, have been for the most part circumstances attendant upon man's sociality, or the capacity of individuals for aggregating into communities of increasing extent and complexity. Here we become involved in considerations relating to the emotions as well as to the intelligence. The capacity for sustaining the various relationships implied by the existence of a social aggregate — whether in the case of a primeval family community or of a modern nation — cannot be explained without taking into the account the genesis of those moral feelings by the possession of which man has come to differ from the highest brutes even more conspicuously than by his purely intellectual achievements. The task now before us, therefore, is to explain the genesis of the moral feelings which lie at the bottom of sociality in the human race; and with reference to this question I shall presently have a suggestion to offer, which will be found as serviceable as it is interesting and novel. Let

us for the moment, however, consider the implications of some of the current ethical theories, and especially let us examine the scientific basis of what is too crudely designated as Utilitarianism.

CHAPTER XXII

GENESIS OF MAN, MORALLY

THERE are two things, said Kant, which fill me with awe because of their sublimity, — the starry heavens above us, and the moral law within us. From the modern point of view there is interest as well as instruction to be found in the implied antithesis. While in the study of the stellar universe we contemplate the process of evolution on a scale so vast that reason and imagination are alike baffled in the effort to trace out its real significance, and we are overpowered by the sense of the infinity that surrounds us; on the other hand, in the study of the moral sense we contemplate the last and noblest product of evolution which we can ever know, — the attribute latest to be unfolded in the development of psychical life, and by the possession of which we have indeed become as gods, knowing the good and the evil. The theorems of astronomy and the theorems of ethics present to us the process of evolution in its extremes of extension and of intension respectively. For although upon other worlds far out in space there may be

modes of existence immeasurably transcending Humanity, yet these must remain unknowable by us. And while this possibility should be allowed its due weight in restraining us from the vain endeavour to formulate the infinite and eternal Sustainer of the universe in terms of our own human nature, as if the highest symbols intelligible to us were in reality the highest symbols, nevertheless it can in no way influence or modify our science. To us the development of the noblest of human attributes must ever remain the last term in the stupendous series of cosmic changes, of which the development of planetary systems is the first term. And our special synthesis of the phenomena of cosmic evolution, which began by seeking to explain the genesis of the earth and its companion worlds, will be fitly concluded when we have offered a theory of the genesis of those psychical activities whose end is to secure to mankind the most perfect fulness of life upon this earth, which is its dwelling place.

The great philosopher whose remark has suggested these reflections would not, however, have been ready to assent to the interpretation here given. Though Kant was one of the chief pioneers of the Doctrine of Evolution, having been the first to propose and to elaborate in detail the theory of the nebular origin of planetary systems, yet the conception of a continuous

development of life in all its modes, physical and psychical, was not sufficiently advanced, in Kant's day, to be adopted into philosophy. Hence in his treatment of the mind, as regards both intelligence and emotion, Kant took what may be called a statical view of the subject; and finding in the adult civilized mind, upon the study of which his systems of psychology and ethics were founded, a number of organized moral intuitions and an organized moral sense, which urges men to seek the right and to shun the wrong, irrespective of utilitarian considerations of pleasure and pain, he proceeded to deal with these moral intuitions and this moral sense as if they were ultimate facts, incapable of being analyzed into simpler emotional elements. Now as the following exposition may look like a defence of utilitarianism, it being really my intention to show that utilitarianism in the deepest and widest sense is the ethical philosophy imperatively required by the facts, it is well to state, at the outset, that the existence of a moral sense and moral intuitions in civilized man is fully granted. It is admitted that civilized man possesses a complex group of emotions, leading him to seek the right and avoid the wrong, without any reference to considerations of utility — and I disagree entirely with those utilitarian disciples of Locke, who would apparently refer these ethical emotions to

the organization of experiences of pleasure and pain in the case of each individual. So long as the subject is contemplated from a statical point of view, so long as individual experience is studied without reference to ancestral experience, the follower of Kant can always hold his ground against the follower of Locke, in ethics as well as in psychology. When the Kantian asserts that the intuitions of right and wrong, as well as the intuitions of time and space, are independent of experience, he occupies a position which is impregnable, so long as the organization of experiences through successive generations is left out of the discussion. But already, on two occasions of supreme importance, we have found the Doctrine of Evolution leading us to a common ground upon which the disciples of Kant and the disciples of Locke can dwell in peace together. We have seen that the experience test and the inconceivability test of truth are, when deeply considered, but the obverse faces of the same thing. We have seen that there is a standpoint from which the experience theory and the intuition theory of knowledge may be regarded as mutually supplementing each other. We shall presently see, in like manner, that the so-called doctrine of utilitarianism and the doctrine of moral intuitions are by no means so incompatible with one another as may at first appear. As soon as we begin to study the subject dy-

namically, everything is shown in a new light. Admitting the truth of the Kantian position, that there exists in us a moral sense for analyzing which our individual experience does not afford the requisite data, and which must therefore be regarded as ultimate for each individual, it is nevertheless open to us to inquire into the emotional antecedents of this organized moral sense as exhibited in ancestral types of psychical life. The inquiry will result in the conviction that the moral sense is not ultimate, but derivative, and that it has been built up out of slowly organized experiences of pleasures and pains.

But before we can proceed directly upon the course thus marked out, it is necessary that we should determine what are meant by pleasures and pains. What are the common characteristics, on the one hand, of the states of consciousness which we call pleasures, and, on the other hand, of the states of consciousness which we call pains? According to Sir William Hamilton, "pleasure is a reflex of the spontaneous and unimpeded exertion of a power of whose energy we are conscious; pain is a reflex of the overstrained or repressed exertion of such a power." That this theory, which is nearly identical with that of Aristotle, is inadequate to account for all the phenomena of pleasure and pain, has been, I think, conclusively proved by Mr. Mill. With its complete adequacy, however, we need not

now concern ourselves; as we shall presently see that a different though somewhat allied statement will much better express the facts in the case. Hamilton's statement, however inadequate, is illustrated by a number of truths which for our present purpose are of importance. A large proportion of our painful states of consciousness are attendant upon the inaction, or what Hamilton less accurately calls the "repressed exertion," of certain organic functions. According to the character of the functions in question, these painful states are known as cravings or yearnings. Inaction of the alimentary canal, and that molecular inaction due to deficiency of water in the system, are attended by feelings of hunger and thirst, which vary from slight discomfort to intense agony according as the inaction is prolonged. Of kindred character are the acquired cravings for tobacco, alcohol, and other narcotics. Inaction of the muscles causes great discomfort in children who are compelled to sit still, and grown persons feel similar annoyance when the enforced stillness is long enough kept up. Prisoners kept in dark cells soon feel an intense craving for light, which in time becomes scarcely less intolerable than raging hunger. A similar explanation suffices for the emotional yearnings involved in homesickness, ennui, deprivation of the approval of our fellow creatures, or in separation from our

favourite pursuits. All these painful states are due to the enforced inaction of certain feelings, social or æsthetic. And in similar wise, as Mr. Spencer observes, the bitter grief attendant upon the death of a friend results from the ideal representation of a future in which certain groups of habitual emotions must remain inactive or unsatisfied by outward expression.

The objection may be made that all this is but an elaborate way of saying that certain pains result from the deprivation of certain pleasures. But since such an objection, in its very statement, recognizes that certain kinds of unimpeded activity, physical or psychical, are pleasures, it need not disturb us, or lead us to underestimate the value of Hamilton's suggestion. Let us note next that excessive action of any function, equally with deficient action, is attended by pain. Local pain results from intensified sensations of heat, light, sound, or pressure; and though it may be in some cases true, as Mr. Spencer asserts, that sweet tastes are not rendered positively disagreeable by any degree of intensity,[1] the alleged fact seems quite contrary to my own experience, and to that of several other persons whom I have questioned. Other local pains, as in inflammation and sundry other forms of disease, are apparently due to increased molecular activity in

[1] Spencer, *Principles of Psychology*, vol. i. p. 276. [§ 123.]

the parts affected. And the feelings of pain or discomfort, both local and systemic, attendant upon overexercise, overeating, or excessive use of a narcotic, are to be similarly explained.

Thus we may say that pleasure, generally speaking, is "the concomitant of an activity which is neither too small nor too great," and we get at the significance of the Epicurean maxim, *μηδὲν ἄγαν*. But this doctrine, as already hinted, is by no means complete. For, as Mr. Mill and Mr. Spencer ask, "What constitutes a medium activity? What determines that lower limit of pleasurable action below which there is craving, and that higher limit of pleasurable action above which there is pain?" And furthermore, how happen there to be certain feelings (as among tastes and odours) which are disagreeable in all degrees of intensity, and others that are agreeable in all degrees of intensity? The answer, as Mr. Spencer shows, is to be sought in the study of the past conditions under which feelings have been evolved.

If the tentacles of a polyp are rudely struck by some passing or approaching body, the whole polyp contracts violently in such a manner as to throw itself slightly out of the way; but if a fragment of assimilable food, floating by, happens to touch one of the tentacles gently, the tentacle grasps it and draws it slowly down to the polyp's digestive sac. Now between these

contrasted actions there is no such psychical difference as accompanies the similarly contrasted human actions of taking food and ducking the head to avoid a blow; for the polyp's contractions, being simply reflex actions of the lowest sort, are unattended by states of consciousness, either agreeable or disagreeable. Nevertheless there is one respect in which the two cases perfectly agree. In both cases there is a seeking of that which is beneficial to the organism, and a shunning of that which is injurious. And while, in the case of the polyp, there is no conscious pleasure or pain, we may fairly surmise that, as soon as any animal's psychical life becomes sufficiently complex to be attended by distinct states of consciousness, the presence of that which is beneficial is accompanied by a pleasurable feeling which leads to the seeking of it, while the presence of that which is injurious is accompanied by a painful feeling which leads to the shunning of it. Our surmise is strengthened as we reconsider the human actions lately enumerated, and observe that the abnormal activity of a function, either in deficiency or in excess, is injurious, while the normal activity of a function in balance with its companion functions is beneficial. As Mr. Spencer says, "in a mutually dependent set of organs having a consensus of functions, the very existence of a special organ having its special function implies that the

absence of its function must cause disturbance of the consensus, — implies, too, that its function may be raised to an excess which must cause disturbance of the consensus, — implies, therefore, that maintenance of the consensus goes along with a medium degree of its function." In accordance with this view, we may note that hunger and thirst are feelings attendant upon a kind of functional inaction which is harmful, and even fatal if prolonged; that inaction or excessive action of the muscles is injurious as well as painful; that the intense heat and cold, and the violent pressure, which cause distress, will also cause more or less injury, and may cause death; that the discomfort following repletion and narcosis is the concomitant of a state of things which, if kept up, must end in dyspepsia, or other forms of disease, entailing usually a permanent lowering of nutrition; and that the intense sounds and lights which distress the ear and eye also tend to produce deafness and blindness. And in like manner, the enforced inaction of the social and æsthetic feelings, which is attended by mental discomfort, is also attended in the long run by a diminution of the fulness and completeness of psychical life, which in extreme cases may result in consumption, insanity, or narcotic craving.

It would seem, therefore, that the class of cases upon which Hamilton relied will justify

an interpretation much deeper than the one which he proposed for them. They will apparently justify us in asserting that pleasure is a state of consciousness accompanying modes of activity which tend to increase the fulness of life of an organism, while pain is a state of consciousness accompanying modes of activity which tend to diminish the fulness of life. Before considering the objections to this doctrine, which, though at first sight formidable, will disappear on further analysis, let us note, with Mr. Spencer that, on the theory of evolution, "races of sentient creatures could have come into existence under no other conditions." Omitting the cases which, in human psychology, are complicated by the foresight of remote or inconspicuous consequences, Mr. Spencer observes that Pleasure is "a feeling which we seek to bring into consciousness and retain there," while Pain is "a feeling which we seek to get out of consciousness and to keep out." Hence it follows that "if the states of consciousness which a creature endeavours to maintain are the correlatives of injurious actions, and if the states of consciousness which it endeavours to expel are the correlatives of beneficial actions, it must quickly disappear through persistence in the injurious and avoidance of the beneficial." In other words, even supposing a race of animals could come into existence, which should habit-

ually seek baneful actions as pleasurable, and shun useful actions as painful, natural selection would immediately exterminate it. Our supposition is therefore a hibernicism: under the operation of natural selection no such race could ever come into existence. Only those races can exist whose feelings, on the average, result in actions which are in harmony with environing relations. Accordingly we may rest upon a still deeper and firmer basis our doctrine of pleasure and pain, and assert that Pleasure is a state of consciousness accompanying the relatively complete adjustment of inner to outer relations, while Pain is a state of consciousness attendant upon the discordance between inner and outer relations.

We may now consider a class of facts which at first seem inconsistent with the theory, but which in reality serve further to illustrate it. Animals now and then perform self-destructive actions under circumstances which make it difficult to suppose that the performance is not pleasurable. Though the majority of vegetable poisons are disagreeable to the taste, yet this is not always the case; and hence animals have been known to perish after a greedy meal upon some noxious herb. But here, as in the case of the moth which, in Tennyson's phrase, is "shrivelled in a fruitless fire," there is a new relation in the environment for which there is

no corresponding adjustment established in the organism. The cases are like that of the child who ignorantly drinks a sweet poison, or satisfies its desire for muscular activity by climbing out of the window. The dynamic theory of life does not imply the preëxistence of internal relations answering to all possible external relations. Were it so, life would be complete from the outset. For new emergencies there have to be new adjustments. Now manifestly if the whole race of moths could be made to live among lighted candles, one of two things must happen — either there must be generated a tendency to avoid the candles, or the race must be exterminated. If an animal migrates to a district where poisonous herbs abound, its existence can be maintained only on one of two conditions: if it be low in intelligence, a disagreeable taste must be generated, so that the noxious food will be instantly rejected, or the odour must become offensive, so that the taste will be forewarned; but if the animal be possessed of high intelligence, like a bird or mammal, it will be enough if the dangerous object is identified by smell or taste, or even by vision or touch, while along with the recognition there occurs an ideal representation of danger. Hence it is not necessary to the maintenance of a race like mankind that all poisons should be bitter, or that injurious actions, newly tried, should pain-

fully affect any of the senses. The work of making the needful adjustments is thrown largely upon the cerebrum, with its power of forming ideal sequences like those formerly experienced, and of directing action so as to anticipate them. Here, indeed, we come suddenly upon one of the conditions of human progressiveness, as above illustrated.

We can now begin to see why man finds pleasure in so many kinds of activity which are noxious to himself. In no other animal are the failures of adjustment between pleasurable and painful states, and beneficial and hurtful actions, so numerous or so conspicuous as in man. Though in the adjustments upon which the maintenance of life immediately depends, the correspondence is of necessity unimpaired, yet in those less essential adjustments concerned in keeping up the greatest possible fulness of life, there is frequent and lamentable imperfection. Thus, — to take one instance out of a hundred, — we continually see pleasurable states of consciousness associated with hurtful actions in the cases of men who ruin themselves by the use of narcotics. The fact that men, who are so much wiser than brutes, should often persist in conduct unworthy of brute intelligence, has long formed the theme of much sage but fruitless moralizing. By Calvinistic theologians such phenomena were formerly cited in proof of the

theory that man is morally the lowest of crea
tures, having been rendered thoroughly unsoun
by the eating of the apple in Eden. It is need
less to say that science offers a very differen
explanation. It follows from our inquiry int
the causes of organic evolution,[1] that the ad
justments which tend to maintain the highes
fulness of life can be kept up only by natura
selection or by direct equilibration. Now w
have already had occasion to notice that in th
human race, partly on account of the extrem
complexity of its individual organization, partl
on account of superadded social conditions, th
action of natural selection is to a great exten
checked. I do not allude to the fact that th
supremely important human sympathies, whic
have grown up in the course of social evolutio
compel us to protect the idle and intemperate, s
that, instead of starving, they are "enabled
multiply at the expense of the capable and in
dustrious." For far deeper than this lies th
circumstance that "there are so many kinds o
superiorities which severally enable men to su
vive, notwithstanding accompanying inferior
ties, that natural selection cannot by itself re
tify any particular unfitness; especially if,
usually happens, there are coexisting unfitness
which all vary independently."[2] In a race o

[1] See above, Part II. chap. xii.

[2] Spencer, op. cit. i. 284. [§ 126.]

inferior animals a function in excess is quickly reduced by natural selection, because, owing to the universal slaughter, the highest completeness of life possible to a given grade of organization is required for the mere maintenance of life. But under the conditions surrounding human development, a function in excess may remain in excess provided its undue exercise is not such as is incompatible with life. Through countless ages, for example, the feelings which ensure the maintenance of the race have been strengthened by natural selection, because of their prime importance to every race. But under the conditions of civilized life, the sexual passion has become a function in excess, which natural selection is powerless to reduce, because, although it is probably the source of more crime and misery than any other excessive function, and therefore detracts more from complete individuation or the fulness of human life than any other, it is nevertheless but seldom incompatible with the maintenance of life. In all such cases, mankind has so many other functions, besides the excessive ones, which enable it to subsist and achieve progress in spite of them, that their reduction to the normal standard is left for the slow process of direct equilibration.

The action of direct equilibration, in turn, is greatly complicated, among the progressive

races, by the rapid and extensive change of the social environment from age to age. A new set of readjustments needs to be made before the old ones are completed ; and the result is that there are always a number of functions somewhat out of balance. When civilization is rapidly progressing, each generation of men is forced into kinds of activity to which the inherited emotional tendencies, and in some cases even the inherited physical constitutions, are not thoroughly adapted. Hence the number and variety of pathological phenomena, both mental and physical, is greater in civilized than in savage communities. As might be expected, the present century, which has witnessed a far more extensive revolution in the modes of human activity than any previous age, exhibits numerous instances of these minor failures of adjustment. To take the most conspicuous example, — the progress of science and industry during the past three generations have raised the average standard of comfortable living so greatly and so suddenly, that to attain this standard an excessive strain is put upon men's powers. In many respects it is harder to live today than it was a hundred years ago. As a general rule we are overworked until late in life, in the mere effort to secure the means of maintaining life. Not only does this continual overwork entail a serious disturbance of the nor-

mal equilibrium between pleasures and pains and the correlative benefits and injuries, since it involves the undue exertion of certain faculties and the undue repression of others, but there is further disturbance due to the specific character of the overwork. Throughout a very large and constantly increasing portion of the community, the excessive labour is intellectual labour; the abnormal strain comes upon the nervous system. The task of maintaining the correspondence with environing relations, which in the course of organic evolution has been entrusted more and more largely to the nervous system, and which in the course of social evolution has been thrown more and more upon the cerebrum, has during the past hundred years been thrown upon the cerebrum to a formidable extent. The community, therefore, is suffering not simply from overwork, but from excessive brain work, in the shape of inordinate thinking and planning, and inordinate anxiety. "Further, it is to be observed that many of the industrial activities which the struggle for existence has thrust on the members of modern societies, are indoor activities, — activities not only not responded to by the feelings inherited from aboriginal men, but in direct conflict with those more remotely inherited and deeply organized feelings which prompt a varied life in the open air." Hence manifold disturbance. "A seden-

tary occupation pursued for years in a confined air, regardless of protesting sensations, brings about a degenerate physical state in which the inherited feelings are greatly out of harmony with the superinduced requirements of the body. Desired foods, originally appropriate, become indigestible. An air pleasure-giving by its freshness to those in vigour, brings colds and rheumatisms. Amounts of exertion and excitement naturally healthful and gratifying are found injurious. All which evils, due though they are to continued disregard of the guidance of inherited feelings, come eventually to be mistaken for proofs that the guidance of inherited feelings is worthless."[1]

Further to pursue this interesting subject would be to convert a set of illustrations, already too elaborately stated, into an unmanageable digression. Summing up the results now obtained, we see that natural selection, acting less rigidly under the limitations imposed by social evolution, fails to reduce functions that are in excess, and leaves them to be reduced by direct equilibration. The process is accordingly slow, since direct adaptation to a rapidly changing environment is attended by the appearance of

[1] Spencer, op. cit. i. 282, 283. [§ 126.] Light is thus thrown upon the misuse of alcohol and tobacco, — one of the most conspicuous of the cases in which men's physical appetites prompt to actions that are injurious.

minor unfitnesses which further complicate the emotional disturbance, and disarrange the normal relations between incentives and actions. We need not, therefore, be surprised at the fact that men often find pleasure in detrimental activities; nor need we endorse the Puritanic or ascetic theory, suggested partly by the contemplation of this fact, "that painful actions are beneficial and pleasurable actions detrimental." For if this were to any considerable extent the case, sentient life would inevitably disappear from the face of the earth. The cases which we have cited belong to ethical pathology. And just as pathologic phenomena do not invalidate the laws of physiology, just as the dynamic theory of life is not invalidated by the fact that maladjustments are continually met with, so neither do cases of moral disease invalidate the corollary which inevitably follows from the Doctrine of Evolution — "that pleasures are the incentives to life-supporting acts, and pains the deterrents from life-destroying acts."

We are now prepared to deal with the phenomena of Right and Wrong, and to notice how they become distinguished from the phenomena of Pleasure and Pain. Though the foregoing discussion forms the basis for a general doctrine of morality, it is nevertheless an inadequate basis, until properly supplemented. The existence of a moral sense has purposely

been as far as possible unrecognized — for I believe that in dealing with these complex subjects, little can be accomplished, save on the plan of separately cornering the various elements in the problem, and flooring them one by one. Any philosophy of ethics, therefore, which might be founded upon the preceding analysis, could be nothing more than a theory of Hedonism, recognizing no other incentive to proper action than the pleasing of one's self. By one of the innumerable tricks which the misuse of current words plays with the understanding, the so-called utilitarian theory has been, and still is, not unfrequently identified with this kind of hedonistic philosophy, which is in truth its very antipodes. The error is much like that involved in the accusation of fatalism, commonly hurled at those who maintain the obvious and harmless assertion that moral actions conform to law. But the difference, comprising the entire difference between the noblest self-sacrifice and the meanest self-fondling, is as follows: In our theory of pleasure and pain, which if taken as ultimate would be hedonism, the well-being of the community has been as far as possible omitted from the account. Wherever I have introduced references to social phenomena, I have considered them only in their effects upon the fulness of life of the individual. In dealing with the incentives to action in a

race of brute animals, the foregoing considerations would be sufficient. But in the so-called utilitarian theory as it is now to be expounded, the well-being of the community, even when incompatible with that of the individual, is the all-important consideration. While the actions deemed pleasurable are those which conduce to the fulness of life of the Individual, the actions deemed right are those which conduce to the fulness of life of the Community. And while the actions deemed painful are those which detract from the fulness of life of the Individual, the actions deemed wrong are those which detract from the fulness of life of the Community. According to utilitarianism, therefore, as here expounded, the conduct approved as moral is the disinterested service of the community, and the conduct stigmatized as immoral is the selfish preference of individual interests to those of the community. And bearing in mind that the community, which primevally comprised only the little tribe, has by long-continued social integration come to comprise the entire human race, we have the ultimate theorem of the utilitarian philosophy, as properly understood, that actions morally right are those which are beneficial to Humanity, while actions morally wrong are those which are detrimental to Humanity.

Are we to maintain, then, that when we ap-

prove of certain actions, we do so because we consciously and deliberately reason out, in each particular case, the conclusion that these actions are beneficial to mankind? By no means. Not only is it that the highest science cannot always enable us to say surely of a given action that it is useful to mankind, but it is also that we do not stop to apply science to the matter at all. We approve of certain actions and disapprove of certain actions quite instinctively. We shrink from stealing or lying as we shrink from burning our fingers; and we no more stop to frame the theorem that stealing and lying, if universally practised, must entail social dissolution and a reversion to primeval barbarism, than we stop to frame the theorem that frequent burning of the fingers must entail an incapacity for efficient manual operations. In short, there is in our psychical structure a moral sense which is as quickly and directly hurt by wrong-doing or the idea of wrong-doing as our tactile sense is hurt by stinging.

Shall we then maintain, as a corollary from the Doctrine of Evolution, that our moral sense is due to the organic registration, through countless ages, of deliberate inferences that some actions benefit Humanity, while others injure it? Shall we say that the primeval savage began by reasoning his way to the conclusion that if treachery were to be generally allowed within

the limits of the tribe, then the tribe must succumb in the struggle for existence to other tribes in which treachery was forbidden; and that, by a gradual organization of such inductions from experience, our moral sense has slowly arisen? This position is no more tenable than the other. Mr. Richard Hutton and Mr. St. George Mivart would seem to have attributed to Mr. Spencer some such doctrine. But Mr. Spencer is too profound a thinker to ignore so completely the conditions under which permanent emotional states are generated. Our moral sense has arisen in no such way. But to understand the way in which it has arisen, we must recur to our fundamental problem, and seek for the conditions which first enabled social evolution, as distinguished from organic evolution, to start upon its career.

It is now time to propose an answer to the question, already twice suggested and partly answered, How did social evolution originate? Starting from the researches of Sir Henry Maine, which are supported by those of Messrs. Tylor, M'Lennan, and Lubbock, we have come to the conclusion that it originated when families, temporarily organized among all the higher gregarious mammals, became in the case of the highest mammal permanently organized. Starting from the deductions of Mr. Wallace, we have seen reason for believing that civilization

originated when in the highest mammal variations in intelligence became so much more important than variations in physical structure that they began to be seized upon by natural selection to the relative exclusion of the latter. In the permanent family we have the germ of society. In the response to outer relations by psychical changes, which almost completely subordinate physical changes, we have the germ of civilization. Let us now take a step in advance of previous speculation,[1] and see what can be done by combining these two theorems, so that the permanent organization of families and the complex intelligence of the highest mammal will appear in their causal relations to each other.

Many mammals are gregarious, and gregariousness implies incipient power of combination and of mutual protection. But gregariousness differs from sociality by the absence of definitive family relationships, except during

[1] The latest writer upon these subjects is inclined to give up the problem as insoluble. "I at least find it difficult to conceive of men at all like the present men, unless existing in something like families, that is, in groups avowedly connected, at least on the mother's side, and probably always with a vestige of connection, more or less, on the father's side, and unless these groups were, like many animals, gregarious, under a leader more or less fixed. It is almost beyond imagination how man, as we know man, could by any sort of process have gained this step in civilization." Bagehot, *Physics and Politics*, p. 136.

the brief and intermittent periods in which there are helpless offspring to be protected. Now it might be maintained that the complex intelligence of the highest mammal led him vaguely to recognize the advantage of associating in more and more permanent groups for the sake of mutual protection. From this point of view Mr. Darwin argues that men were originally a race of weak and mild creatures like chimpanzees, and not a race of strong and ferocious creatures like gorillas, and were accordingly forced to combine because unable to defend themselves singly. It is undeniable that man is, relatively to his size, a weak animal; and there is much value in Mr. Darwin's suggestion, in so far as it goes, to explain the origin of gregariousness among those primates who were the ancestors of man. Nevertheless it can hardly be said to explain Sociality as distinguished from Gregariousness. It may also be argued that the superior sagacity even of the lowest savage makes him quite a formidable antagonist to animals much more powerful than himself. Besides, the study of savage life brings out results at variance with the notion of man's primitive gentleness. A strong case might be made in support of the statement that uncivilized man is an extremely ferocious animal, and that among savage races, which certainly differ very notably in natural ferocity of disposition, the

most ferocious tribes are often the most likely to become dominant and assist social integration by subduing other tribes. The earliest annals of the highest of human races, the Aryan, certainly bear witness to extreme ferocity, checked and determined in its direction by a moral sense further developed than that of savages. While recognizing, therefore, the value of Mr. Darwin's suggestion, so far as it goes, I believe that the true explanation lies much further beneath the surface.

It will be remembered that, in treating of the parallel evolution of the mind and the nervous system,[1] it was shown that the increase of intelligence in complexity and speciality involves a lengthening of the period during which the nervous connections involved in ordinary adjustments are becoming organized. Even if the physical interpretation there given should turn out to be inadequate, the fact remains undeniable, that while the nervous connections accompanying a simple intelligence are already organized at birth, the nervous connections accompanying a complex intelligence are chiefly organized after birth. Thus there arise the phenomena of infancy, which are non-existent among those animals whose psychical actions are purely reflex and instinctive. Infancy, psychologically considered, is the period during

[1] See above, Part II. chap. xvi.

which the nerve connections and correlative ideal associations necessary for self-maintenance are becoming permanently established. Now this period, which only begins to exist when the intelligence is considerably complex, becomes longer and longer as the intelligence increases in complexity. In the human race it is much longer than in any other race of mammals, and it is much longer in the civilized man than in the savage.[1] Indeed among the educated classes of civilized society, its average duration may be said to be rather more than a quarter of a century, since during all this time those who are to live by brain work are simply acquiring the capacity to do so, and are usually supported upon the products of parental labour.

It need not be said that, on the general theory of evolution, the passage from the short infancy of other primates to the relatively long infancy witnessed among the lowest contemporary savages cannot have been a sudden one.[2]

[1] Possibly there may be a kindred implication in the fact that women attain maturity earlier than men.

[2] In this connection it is interesting to observe that the phenomena of infancy seem to be decidedly more marked in the anthropoid apes than in other non-human primates. At the age of one month the orang-outang begins to learn to walk, holding on to convenient objects of support, like a human infant. Up to this time it lies on its back, tossing about and examining its hands and feet. A monkey at the same age has reached maturity, so far as locomotion and prehension are

But a special reason may be assigned why Nature, which never makes long jumps, must have been incapable of making this particular jump. Throughout the animal kingdom the period of infancy is correlated with feelings of parental affection, sometimes confined to the mother, but often shared by the father, as in the case of animals which mate. Where, as among the lower animals, there is no infancy, there is no parental affection. Where the infancy is very short, the parental feeling, though intense while it lasts, presently disappears, and the offspring cease to be distinguished from strangers of the same species. And in general the duration of the feelings which ensure the protection of the offspring is determined by the duration of the infancy. The agency of natural selection in maintaining this balance is too obvious to need illustration. Hence, if long infancies could have suddenly come into existence among a primitive race of ape-like men, the race would have quickly perished from inadequate persistence of the parental affections. The prolongation must therefore have been gradual, and the same increase of intelligence to which it was due must also have prolonged the correlative parental feelings, by associating them more and

concerned. See Mr. Wallace's interesting experience with an infant orang-outang in his *Malay Archipelago*, vol. i. pp. 68-71.

more with anticipations and memories. The concluding phases of this long change may be witnessed in the course of civilization. Our parental affections now endure through life — and while their fundamental instinct is perhaps no stronger than in savages, they are, nevertheless, far more effectively powerful, owing to our far greater power of remembering the past and anticipating the future.

I believe we have now reached a very thorough and satisfactory explanation of the change from Gregariousness to Sociality. Bear in mind that I am not indulging in pure hypothesis. The prolongation of infancy accompanying the development of intelligence, and the correlative extension of parental feelings, are facts established by observation wherever observation is possible. And to maintain that the correlation of these phenomena was kept up during an epoch which is hidden from observation, and can only be known by inference, is to make a genuine induction, involving no other assumption than that the operations of nature are uniform. To him who is still capable of believing that the human race was created by miracle in a single day, with all its attributes, physical and psychical, compounded and proportioned just as they now are, the present inquiry is, of course, devoid of significance. But for the evolutionist there would seem to be no alternative but

to accept, when once propounded, the present series of inferences.[1]

For the process here described, when long enough continued, must inevitably differentiate and integrate a herd or troop of gregarious ape-like men into a number of small family communities such as are now found among the lowest savages. The prolonged helplessness of the offspring must keep the parents together for longer and longer periods in successive epochs; and when at last the association is so long kept up that the older children are growing mature while the younger ones still need protection, the family relations begin to become permanent. The parents have lived so long in company that to seek new companionships involves some disturbance of ingrained habits; and meanwhile the older sons are more likely to continue their original association with each other than to establish associations with strangers, since they have common objects to achieve, and common enmities, bequeathed and acquired, with neighbouring families. As the parent dies, the headship of the family thus established devolves upon the oldest, or bravest, or most sagacious male remaining. Thus the little group gradually becomes a clan, the members of which are united by ties considerably stronger than

[1] [See Introduction, § 26, for further references regarding this theory.]

those which ally them to members of adjacent clans, with whom they may indeed combine to resist the aggressions of yet further outlying clans, or of formidable beasts, but towards whom their feelings are usually those of hostile rivalry. It remains to add, that the family groups thus constituted differ widely in many respects from modern families, and do not afford the materials for an idyllic picture of primeval life. Though always ready to combine against the attack of a neighbouring clan, the members of the group are by no means indisposed to fight among themselves. The sociality is but nascent: infants are drowned, wives are beaten to death, and there are deadly quarrels between brothers. So in modern families evanescent barbarism shows itself in internal quarrels, while nevertheless injury offered from without is resented in common. A more conspicuous difference is the absence of monogamy in the primitive clan. It has been, I think, demonstrated, — and for the evidence in detail I would refer to Sir John Lubbock's excellent treatise on the "Origin of Civilization," and to the learned works of M'Lennan and Tylor, — that in the primitive clan all the women are the wives of all the men.[1] Traces of this state of

[1] [For Spencer's later published views as to the primitive family, and as to the primitive relations of the sexes, see Part III. of the *Principles of Sociology*.]

things, which some of our half-educated "reformers" would fain restore, are found all over the world, both in modern savage communities and in traditional observances preserved by communities anciently civilized. There was also, as Sir Henry Maine has proved, entire community of lands and goods, and the individual possessed no personal rights as against the interests of the clan. And let us note in conclusion, that this state of things, while chiefly brought about by the process of direct equilibration above described, is just that which natural selection must assist and maintain so long as the incipient community is small and encompassed by dangers.

Thus we cross the chasm which divides animality from humanity, gregariousness from sociality, hedonism from morality, the sense of pleasure and pain from the sense of right and wrong. For note that by the time integration has resulted in the establishment of a permanent family group with definite relationships between the members, the incentives to action in each member of the group have become quite different from what they were in a state of mere gregariousness. Sympathy, or the power of ideally reproducing in one's self the pleasures and pains of another person, is manifested in a rudimentary form by all gregarious animals of moderate intelligence. Not unfrequently, as Mr. Darwin

shows, a baboon has been known to risk his life to save that of a comrade; and the higher apes habitually take under their care young orphans of their own species. It is evident that this power of sympathy must be strengthened and further developed when a number of individuals are brought into closer and more enduring relationships, even though these come far short of what, from our modern ethical standard, would be termed loving. Affection in the savage clan is but partially preventive of fiendish cruelty; yet there is an ability in the members to understand each other's feelings, and there is a desire for the approbation of fellow clansmen. Kinship in blood, as well as community of pursuits and interests, promotes these feelings. Even to-day we can usually understand the mental habits, desires, and repugnances of our own immediate kindred better than we can understand those of other people unrelated to us, even though circumstances may now and then have led us to prefer the society of the latter. We can more readily admire their excellences and condone their faults, for their faults and excellences are likely to be in a measure our own.

Given this rudimentary capacity of sympathy, we can see how family integration must alter and complicate the emotional incentives to action. While the individual may still exercise his brute-like predatory instincts upon strangers and lower

animals, and will, indeed, be more highly approved the more he does so, on the other hand there is a curb upon his exercise of them within the limits of the clan. There is a nascent public opinion which lauds actions beneficial to the clan, and frowns upon actions detrimental to it; though for this it is not necessary that there should be a generalization of the effects of certain actions, any more than a generalization of the effects of hunger is needed to ensure the individual's approval of eating. The mere present sense of collective pleasure or pain is enough to organize the complex feeling. For example, when a marauding expedition upon a neighbouring clan is defeated by the cowardice or treachery of one of the party, the offender is perhaps beaten, kicked, or killed. The present sense of collective pain immediately prompts the actions which tend to repress the cowardice or treachery. On the other hand, the pleasurable states which result in all the members of the clan, in common, after an exhibition of successful bravery, immediately generate approval of the man who is brave, along with the desire to imitate him. In short, — to quote Mr. Spencer, — one of the things that come to be strongly associated in the mind of the young savage, with marks of approval, "which are symbolical of pleasures in general, is courage; and one of the things that comes to be associated in his mind with frowns

and other marks of enmity, which form his symbol of unhappiness, is cowardice. These feelings are not formed in him because he has reasoned his way to the truth that courage is useful to his tribe, and by implication to himself, or to the truth that cowardice is a cause of evil. In adult life he may, perhaps, see this; but he certainly does not see it at the time when bravery is thus associated in his consciousness with all that is good, and cowardice with all that is bad. Similarly there are produced in him feelings of inclination or repugnance towards other lines of conduct that have become established or interdicted, because they are beneficial or injurious to the tribe; though neither the young nor the adults know why they have become established or interdicted. Instance the praiseworthiness of wife-stealing and the viciousness of marrying within the tribe."[1] In these ways the establishment of permanent family relationships generates new incentives to action, unknown in the previous epoch of mere gregariousness, which must often, and in some instances habitually, overrule the mere animal incentives comprised in personal pleasures and pains. The good of the individual must begin to yield to the good of the community.

Next in order comes the genesis of the feel-

[1] Spencer, *Recent Discussions*, p. 23. [*Essays*, Library Edition, vol. i. p. 342.]

ings of regret and remorse, which are the fundamental ingredients of conscience. This part of the subject has been ably treated by Mr. Darwin, whose chapter on the Moral Sense is one of the most profound and suggestive chapters in his recent work on the "Descent of Man." Mr. Darwin points to the important fact, that, while the incentives to actions beneficial to the community are always steadily in operation, on the other hand the purely selfish impulses, although frequently strong enough to acquire temporary mastery over the others, are nevertheless accompanied by pleasures that are brief in duration and leave behind memories of comparatively slight vividness. Now, when intelligence has progressed to a point where there is some definite memory of particular past actions, the workings of the mind, with reference to conduct, begin to assume a more strictly moral character. Though at the moment of action a man may yield to the desire of gratifying hunger, or revenge, or cupidity, at the cost of violating the rules enforced by social sanctions, yet afterwards, when "past and weaker impressions are contrasted with the ever-enduring social instincts, retribution will surely come. Man will then feel dissatisfied with himself, and will resolve, with more or less force, to act differently for the future. This is conscience — for conscience looks backward and judges past ac-

tions, inducing that kind of dissatisfaction which, if weak, we call regret, and, if severe, remorse."[1]

All these varieties of incentive are next reinforced by incentives of a mysterious and supernatural character. When intelligence has progressed to the point where some curiosity is felt concerning the causes of phenomena, — a point barely reached by the lowest contemporary savages, — mythologies begin to be framed. A mythology is a rudimentary cosmic philosophy; and let me note, in passing, that an uncivilized race must have attained considerable latent philosophic capacity before it can construct a rich mythology, — instance the luxuriant folklore of Greece as contrasted with the scanty mythology of savages. Now, the earliest kind of philosophy is fetishism, by which natural phenomena are attributed to the volitions of countless supernatural agencies. What are these agencies? Recent researches have elicited the fact that they are supposed to be the ghosts of the dead ancestors of the tribe. The dead chief, who appears to the savage in dreams, is supposed to rule the winds and floods, and to visit with his wrath those who violate the rules of action established in the tribe.[2] When one of Mr. Darwin's companions, in Tierra del Fuego, shot some birds to preserve as specimens, a

[1] Darwin, *Descent of Man*, vol. i. p. 87.

[2] See *Myths and Myth-Makers*, pp. 102, 320.

Fuegian present exclaimed, "Oh, Mr. Bynoe, rain much, much wind, blow much!" thus indicating his belief that the wasting of food, condemned by tribal rules, would be visited with condign punishment by the tutelar deities of the tribe. "This transfigured form of restraint," says Mr. Spencer, "differing at first but little from the original form, is capable of immense development." As the fetishistic agencies are generalized into the deities of polytheism, and these in time are summed up in a single anthropomorphic deity, there slowly grows up the theory of a hell in which actions condemned by the community will be punished. The complex conceptions of good and evil are thus so widely differentiated from the simpler conceptions of pleasure and pain, that the traces of the original kinship are obscured. This kind of restraint has not ceased to operate upon numbers of civilized men at the present day; and theologians tell us that, if it were removed, there would ensue a moral retrogression. So doubtless there would, if it could be removed prematurely.

Returning to our savage, it must be observed that these combined agencies have enforced upon him an amount of self-restraint, in view of tribal sanctions, which differentiates him widely from any gregarious animal. Savages are not unfrequently capable of extreme devotion and self-sacrifice when the interests of the

tribe are at stake: instances are not rare in which they will deliberately choose to be shot rather than betray the plans of their fellow tribesmen. It is to such cases as these that we must attribute the discrepancies in the accounts of savage morality given by different travellers.[1] If we do not stop to analyze the matter, such instances may seem to prove that the savage is morally on a level with us. But the analysis of countless seemingly inconsistent observations shows that savage virtues are, in general, confined to the clan. The same savage who will suffer torture with equanimity, rather than betray his comrades, is also capable of the most fiendish cruelty and treachery toward the members of another clan. For the very forces which, during long ages, have brought him to the point at which he can sacrifice his own pleasure to the good of the tribe, have also been impressing upon him the meritoriousness of letting loose all his brutal instincts beyond the tribal limits. The savage has no sense of the wickedness of killing, stealing, and lying, in the abstract, or of the horrible cruelty of tying his enemy to a tree and slowly burning him to death with firebrands. To the

[1] Between different savage races, moreover, there are undoubtedly great differences in emotional characteristics. While some, as the Fijis, are exceptionally ferocious, others, as the Hawaiians and Eskimos, appear to be comparatively gentle and sympathetic.

Indians described by Mr. Parkman, such villainy as this formed the most delightful of recreations.

Thus, though the savage has the germ of a moral sense, which prompts him, irrespective of utilitarian considerations, to postpone his personal welfare to that of his clan, he can by no means be accredited with a fully developed moral sense. And the incentives which influence him are not what we call moral sentiments, in the strict sense of the phrase. "They are simply sentiments that precede and make possible those highest sentiments which do not refer either to personal benefits or evils to be expected from men, or to more remote rewards and punishments." The lower incentives have indeed continued to exert a powerful, perhaps a predominating, influence down to the present time. So long as readers are found for ethical treatises like that of Jonathan Dymond, in which the sole ground of moral obligation is held to be the supernaturally revealed fiat of an anthropomorphic Deity, "while sermons set forth the torments of the damned and the joys of the blessed as the chief deterrents and incentives, and while we have prepared for us printed instructions 'how to make the best of both worlds,' it cannot be denied that the feelings which impel and restrain men are still largely composed of elements like those operative on

the savage, — the dread, partly vague, partly specific, associated with the idea of reprobation, human and divine, and the sense of satisfaction, partly vague, partly specific, associated with the idea of approbation, human and divine." [1] But a sound ethical philosophy regards it as degrading to perform good actions or to refrain from performing bad actions merely in order to win applause or to secure a place in heaven. Something more is needed to complete our account of the moral sense.

Nevertheless the more perilous portions of the labyrinth have been traversed, I hope with safety, and we now need only one more clew to bring us to the light. We shall best realize the character of this additional element needed, if we consider for a moment the most general aspects of the two groups of feelings already described. While the feelings of which we first treated under the head of pleasures and pains are purely egoistic or self-regarding feeling, on the other hand the feelings which we have lately described as underlying and forming the groundwork of the moral sense in a state of sociality have been happily characterized by Mr. Spencer as "ego-altruistic" feelings. That is, they concern the happiness of the individual in so far as it depends upon the feelings with which his fellow creatures regard him. The mixed feeling

[1] Spencer, *Principles of Psychology*, vol. ii. p. 602.

ordinarily known as generosity, for example, is often to a very large extent ego-altruistic. "The state of consciousness which accompanies performance of an act beneficial to another is usually mixed; and often the pleasure given is represented less vividly than are the recipient's feeling toward the giver and the approval of spectators. The sentiment of generosity proper is, however, unmixed in those cases where the benefaction is anonymous: provided, also, that there is no contemplation of a reward to be reaped hereafter. These conditions being fulfilled, the benefaction clearly implies a vivid representation of the pleasurable feelings (usually themselves representative) which the recipient will have." [1]

This vivid representation of the pleasurable or painful feelings experienced by others is sympathy; and the additional factor to be taken into the account, in order to complete the explanation of the moral sense, is the enormous expansion of sympathy which has been due to the continued integration of communities, and to the accompanying decrease of warlike or predatory activity. A word of passing comment only is needed for the cynical theory that sympathy is but an ethereally refined selfishness, and that when we relieve a fellow creature in

[1] Spencer, *Principles of Psychology*, vol. ii. p. 613. [Part VIII. § 528.]

distress we do it only because it pains us to see him suffer. This is true; but when the pain occasioned by the sight of another's suffering, or by the idea of suffering and wrong when generalized and detached from the incidents of particular cases, becomes so strong as to determine our actions, then the chasm is entirely crossed which divides us psychically from the brutes. Between the Fiji who keenly relishes the shrieks of his human victim, and Uncle Toby, who could not kill a fly and pitied even the Devil, the difference has come to be generic. And when this kind of self-pleasing is carried so far as to lead a man to risk his life in the effort to rescue a stranger, or perhaps even an enemy, from fire, or drowning, it is so widely removed from what we mean when we speak of selfishness as to be antithetical to it. We do not describe the workings of Shakespeare's genius as reflex actions, though all intelligence was originally reflex action. Neither are we justified in describing as selfish the actions which are dictated by sympathy, though all sympathy is in its origin a kind of self-pleasing.

As already shown in describing the chief characteristics of the evolution of society, the primary cause which has developed sympathy at the expense of the egoistic instincts has been the continued integration of communities, originally mere tribes or clans, into social aggregates of

higher and higher orders of complexity. For by this long-continued process the opportunities for the exercise of the altruistic feelings have been necessarily increased in number and frequency of occurrence, while the occasions requiring the exercise of the anti-social feelings have become less frequent, so that the former set of feelings have become strengthened by use, while the latter have become relatively weakened by disuse. Along with this direct and obvious effect of social integration, another effect has been wrought, indirect and less obvious. A high development of sympathy cannot be secured without a high development of representativeness, so closely interrelated are our intellectual and moral natures. A very feeble faculty of imagining objects and relations not present to sense must necessitate an absence of active sympathetic emotion, save in its crudest form. It is a familiar fact that many men are cruel, in word or deed, because they are incapable of adequately representing to themselves the pain, physical or mental, of which they are the cause. The validity of such an interpretation is confirmed by the fact that even where there is very high representative capacity, the lack of the requisite elements of personal experience will prevent the rise of sympathetic feeling. Thus it is notoriously difficult for strong and healthy people to enter into the feelings of

those who are weak and nervous. These facts show that the development of sympathy is largely determined by the development of the representative faculty and by increasing width and variety of experience. With the simplest form of sympathy, such as the painful thrill felt on seeing some one in a dangerous position, contrast such a complex sentiment as the sense of injustice, and it becomes evident that the latter feeling differs from the former mainly in degree and quantity of representativeness. In the former case there is a representation of the injury or death impending over some person immediately in sight; and it is the shrinking from this detriment to the fulness of life of another person which constitutes the sympathetic feeling. In the latter case — supposing, for example, the kind of injustice in question to be that against which English-speaking people have made provision in *habeas corpus* acts — there is the sympathetic excitement of that highly representative egoistic sentiment known as the love of personal freedom. At first a mere recalcitration against whatever impedes the free action of the limbs, this egoistic feeling has, through increased power of representation, developed into a dislike and dread of whatever possible combination of circumstances may in any way, however remotely, interfere with the fullest legitimate exercise of all the functions of physical and psychical

life. To have this complex feeling sympathetically excited for persons whom one has never seen, and who are perhaps yet unborn, — and still more, to be so far possessed by this highly generalized and impersonal sympathy as to risk one's own liberty and life in efforts to avert the possible evils which are the objects of its dread, — implies a power of representing absent relations such as has yet been acquired by only two or three of the most highly gifted families of mankind. And manifestly the sentiments which respond to the notions of justice and injustice in the abstract are still more remotely representative, still more highly generalized, and still more thoroughly disengaged from the consideration of concrete instances of pleasure and pain.

To this expansion of the power of sympathetically representing feelings detached from the incidents of particular cases, until the sphere of its exercise has become even wider than the human race, and includes all sentient existence, is due our instinctive abhorrence of actions which the organically registered experience of mankind has associated with pain and evil, and our instinctive approval of actions similarly associated with pleasure and increased fulness of life. It is not that, as in intellectual progress, there has been a registration of inferences, at first conscious, but finally automatic; but it is that there has been a registration of feelings

respectively awakened by pleasure-giving and pain-giving actions. And just as men's intellectual conceptions of the causes of phenomena become more and more impersonal as they are extended over wider and wider groups of phenomena, generating at last an abstract conception of Universal Cause, so free from the element of personality that to less cultivated minds it seems atheistic; so in like manner, as the sympathetic feelings are extended over wider and wider areas, no longer needing the stimulus of present pains and pleasures to call them forth, they generate at last an abstract moral sense, so free from the element of personality that to grosser minds it is unintelligible. The savage cannot understand the justice which he sees among Europeans, and the mercy of the white man is ascribed by him to imbecility or fear. To him some personal end seems necessary as an incentive to action. But the philanthropist finds an adequate incentive in the contemplation of injustice in the abstract.

Thus the ethical theories, as well as the psychology, of the schools of Hume and Kant, appear to be reconciled in the deeper synthesis rendered possible by the theory of evolution. On the one hand, it is a corollary from the laws of life that actions desired by the individual and approved by the community must in the long run be those which tend to heighten the life

respectively of the individual and of the community. And on the other hand, it is equally true that there is a highly complex feeling, the product of a slow emotional evolution, which prompts us to certain lines of conduct irrespective of any conscious estimate of pleasures or utilities. In no department of inquiry is the truth and grandeur of the Doctrine of Evolution more magnificently illustrated than in the province of ethics.

Before we conclude, there are one or two further points to which it seems necessary to allude. In asserting that we possess an instinctive and inherited moral sense, it is not meant that we possess, anterior to education and experience, an organic preference for certain particular good actions, and an organic repugnance to certain particular bad actions. We do not inherit a horror of stealing, any more than the Hindu inherits the horror of killing cattle. We simply inherit a feeling which leads us, when we are told that stealing is wrong, to shun it, without needing to be taught that it is detrimental to society. Hence there is a chance for pathological disturbances in the relations between the moral sense and the actions with which it is concerned. Imperfectly adjusted moral codes arise, and false principles of action gain temporary currency. These, nevertheless, come ultimately to outrage our sympathies, and are con-

sequently overthrown; while the principles of action which really tend to heighten the life of society are sustained by our sympathies ever more and more forcibly, and at last become invested with a sacredness which is denied to the others. Hence arises the ethical distinction between *mala prohibita* and *mala in se*.

Finally it is not to be denied that, when the intelligence is very high, there is likely to arise a deliberate pursuit of moral excellence, attended by a distinct knowledge of the elements in which such excellence consists. Instead of being primeval, as the cruder utilitarianism seems to have imagined, such conscious devotion to ends conducive to the happiness of society is the latest and highest product of social evolution, and becomes possible only when the moral sense is extremely developed. At this stage, ethical conceptions begin to be reflected back upon the conduct of the individual where it concerns solely or chiefly himself; and the self-regarding virtues, as Mr. Darwin calls them, which are quite unknown save in a high state of civilization, come into existence. The injury of one's self, by evil thoughts, intemperate behaviour, or indulgence of appetite, comes to be regarded as not only physically injurious, but morally wrong; and there arises the opinion that it is selfish and wicked for one to neglect one's own health or culture. Here we approach the limits

at which morality shades off into religion. For, as I shall hereafter show,[1] Religion views the individual in his relations to the Infinite Power manifested in a universe of causally connected phenomena, as Morality views him in relation to his fellow creatures. To violate the decrees of Nature comes to be considered a sin, capable of awakening keen remorse; for to him whose mental habits have been nurtured by scientific studies, the principles of action prescribed by the need for harmonizing inner with outer relations are, in the truest sense, the decrees of God.

And now, having reached the terminus of our inquiry, let us look back over the course for a moment, that we may see the character of the progress we have achieved. Such a retrospect is here especially needed, because the complexity of our subject has been so great, and the range of our illustrations so wide, that the cardinal points in our argument have perhaps run some risk of getting overlaid and concealed from view, and in particular it may not be sufficiently obvious how completely we have attained the object set before us as the goal of the present chapter and its predecessor, namely, to explain the genesis of the psychical forces which wrought the decisive change from animality to humanity.

[1] See below, Part III. chap. v.

That we may well appreciate the solid consistency of the entire argument concerning the Genesis of Man, let us therefore contemplate in a single view its various factors.

We have seen that the progress from brute to man has been but slightly characterized by change in general bodily structure in comparison with the enormous change which has been wrought in the cerebrum, and in those highest psychical functions which stand in correlation with the condition of the cerebrum. We have seen that the development of these highest psychical functions, in all their wondrous variety and complexity, has consisted at bottom in the increase of the power of mentally representing objects and relations remote from sense. By the reiterated testimony of many diverse kinds of illustrative facts, we have been convinced that in mere quantity of representative capacity, with its infinitely various consequences, the civilized man surpasses the lowest savage by a far greater interval than that by which the lowest savage surpasses the highest ape; just as the gulf between the cerebral capacity of the Englishman and that of the non-Aryan dweller in Hindustan is six times greater than the gulf which similarly divides the non-Aryan Hindu from the gorilla. And we have indicated in sundry ways how this increase in representative capacity, itself a prerequisite to any high de-

gree of social combination, has been furthered by each advance in social combination, so that the enormous psychical progress achieved since mankind became distinctly human has been mainly dependent upon that increasing heterogeneity of experience which increasing social integration has supplied.

But in spite of the fact that the psychical progress achieved since mankind became distinctly human is so much greater in quantity than that which was required to carry it from apehood to manhood, we were led to adopt the Duke of Argyll's suggestion, that the boundary was really crossed when this preliminary and less conspicuous psychical progress had been achieved. And working out the happy thought which science owes to Mr. Wallace, we concluded that this comparatively inconspicuous but all-essential step in psychical progress was taken when the intelligence of the progenitors of mankind had reached the point where a slight increase in representative capacity came to be of greater utility to the species than any practicable variation in bodily structure. Here our first line of inquiry ended. So far as the mere subordination of physical to psychical modification is concerned, the character of the progress from apehood to manhood now became intelligible.

But at this point we were confronted with a

new question, suggested by some of the conclusions obtained on our first line of inquiry. Having perceived that the intellectual progress, or increase in representative capacity, which distinguishes man from brute, is so intimately connected with man's capacity for social combination, it became needful to search for the circumstances which begot in the progenitors of mankind the capacity for a kind of social combination more definite in the character of its relationships than that quasi-social combination, not uncommon among mammals, which is known as gregariousness. In other words, seeing that such thinkers as Sir Henry Maine have shown that the primordial unit of society, by the manifold compounding of which great tribes and nations have come into existence, was the aboriginal family group, with its nascently ethical relationships between the members, how shall we explain the genesis of these family groups, which have nothing strictly answering to them, either among non-human primates or among other gregarious animals?

The feature by which the most rudimentary human family group is distinguished from any collocation of kindred individuals among gregarious mammals is the permanent character of the relationships between its constituent members. Enduring from birth until death, these relationships acquire a traditionary value which

passes on from generation to generation, and thus there arise reciprocal necessities of behaviour between parents and children, husbands and wives, brethren and sisters, in which reciprocal necessities of behaviour we have discerned the requisite conditions for the genesis of those ego-altruistic impulses which, when further modified by the expansion of the sympathetic feelings, give birth to moral sentiments. Accordingly the phenomenon which demands explanation is the existence of permanent relationships, giving rise to reciprocal necessities of behaviour, among a group of individuals associated for the performance of sexual and parental functions.

The explanation, as I have shown, is to be found in that gradual prolongation of the period of infancy, which is one of the consequences, as yet but partially understood, of increasing intelligence. Let us observe the causal connections so far as we can trace them out, recalling some of the conclusions reached in the chapter on the Evolution of Mind.

In an animal whose relations with its environment are very simple, resulting in an experience which is but slightly varied, the combinations of acts requisite for supporting life take place with a regularity and monotony approaching the monotonous regularity with which the functions of the viscera are performed. Hence the tendency to perform these actions is completely

established at birth in each individual, just as the tendency of the viscera to perform their several functions is preëstablished, all that is required in addition being simply the direct stimulus of outward physical opportunity. And the psychical life of such an animal we call purely instinctive or automatic. In such an animal the organized experience of the race counts for everything, the experience of the individual for nothing, save as contributing its mite towards the cumulated experience of the race. But in an animal whose relations with its environment are very complex, resulting in an experience which is necessarily varied to a considerable extent from generation to generation, the combinations of acts requisite for supporting life must occur severally with far less frequency than in the case of the lower animal just considered. Hence the tendency to perform any particular group of these actions will *not* be completely established at birth in each individual, like the tendency of the viscera to perform their several functions. On the other hand, there will be a multitude of conflicting tendencies, and it will be left for the circumstances subsequent to birth to determine which groups of tendencies shall be carried out into action. The psychical life of such an animal is no longer purely automatic or instinctive. A portion of its life is spent in giving direction to its future

career, and in thus further modifying the inherited tendencies with which its offspring start in life. In such an animal the organized experience of the race counts for much, but the special experience of the individual counts for something in altering the future career of the race. Such an animal is capable of psychical progress, and such an animal must begin life, not with matured faculties, but as an infant. Instead of a few actually realized capacities, it starts with a host of potential capacities, of which the play of circumstance must determine what ones shall be realizable.

Manifestly, therefore, the very state of things which made psychical variation more advantageous to the progenitors of mankind than physical variation, — this very state of things simultaneously conspired to enhance the progressiveness of primeval man and to prolong the period of his infancy, until the plastic or malleable part of his life came to extend over several years, instead of terminating in rigidity in the course of four or five months, as with the orang-outang. Upon the consequences of this state of things, in gradually bringing about that capacity for progress which distinguishes man from all lower animals, I need not further enlarge. What we have here especially to note, amid the entanglement of all these causes conspiring to educe humanity from animality, is the fact,

illustrated above, that this prolongation of infancy was manifestly the circumstance which knit those permanent relationships, giving rise to reciprocal necessities of behaviour, which distinguish the rudest imaginable family group of men from the highest imaginable association of gregarious non-human primates.

In this line of inquiry, which, so far as I know, has never yet been noticed by any of the able writers who have dealt with the origin of the human race, it seems to me that we have the clew to the solution of the entire problem. In this new suggestion as to the causes and the effects of the prolonged infancy of man, I believe we have a suggestion as fruitful as the one which we owe to Mr. Wallace. And the most beautiful and striking feature in this treatment of the problem is the way in which all the suggestions hitherto made agree in helping us to the solution. That same increase in representativeness, which is at the bottom of intellectual progressiveness, is also at the bottom of sociality, since it necessitates that prolongation of infancy to which the genesis of sociality, as distinguished from mere gregariousness, must look for its explanation. In this phenomenon of the prolonging of the period of infancy we find the bond of connection between the problems which occupy such thinkers as Mr. Wallace and those which occupy such thinkers as

Sir Henry Maine. We bridge the gulf which seems, on a superficial view, forever to divide the human from the brute world. And not least, in the grand result, is the profound meaning which is given to the phenomena of helpless babyhood. From of old we have heard the monition, "Except ye be as babes, ye cannot enter the kingdom of heaven." The latest science now shows us — though in a very different sense of the words — that, unless we had been as babes, the ethical phenomena which give all its significance to the phrase "kingdom of heaven" would have been non-existent for us. Without the circumstances of infancy we might have become formidable among animals through sheer force of sharp-wittedness. But, except for these circumstances, we should never have comprehended the meaning of such phrases as "self-sacrifice" or "devotion." The phenomena of social life would have been omitted from the history of the world, and with them the phenomena of ethics and of religion.

PART III

COROLLARIES

"Was wär' ein Gott der nur von aussen stiesse,
Im Kreis das All am Finger laufen liesse !
Ihm ziemt's die Welt im Innern zu bewegen,
Natur in Sich, Sich in Natur zu hegen ;
So dass was in Ihm lebt und webt und ist
Nie seine Kraft, nie seinen Geist vermisst."

GOETHE.

"For my thoughts are not your thoughts, neither are your ways my ways, saith the Lord. For as the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts." — ISAIAH.

CHAPTER I

THE QUESTION RESTATED [1]

A SYNTHESIS of scientific doctrines has now been fairly constructed, in accordance with the plan laid out in the eleventh chapter of our Prolegomena. We have passed in review the sciences which deal with the various orders of phenomena that make up the knowable universe, and we have contemplated the widest truths which these sciences severally reveal, as corollaries of an ultimate truth. Before proceeding to expound our Cosmic Philosophy in its final results, let us briefly sum up the leading conclusions at which we have arrived.

It has been proved to follow from that axiom of the Persistence of Force upon which all physical science is based, that the mere coexistence of innumerable discrete bodies in the universe, exerting attractive and repulsive forces upon each other, necessitates a perpetual rhythmical redistribution of the Matter and Motion of which the phenomenal universe is composed. It has been proved that this eternal rhythm must of

[1] [See Introduction, § 28.]

necessity be manifested in alternating eras both general and local, of Evolution and Dissolution, — eras in which now the concentration of Matter and dissipation of Motion, and now the diffusion of Matter and absorption of Motion, predominate, — eras which may be short, as in the duration of a snow-crystal or of a butterfly's life, or long, as in the duration of our planetary system. It has been proved that the process of Evolution, during which Matter is chiefly being concentrated while Motion is chiefly being lost, must, under certain assigned conditions, result in a continuous change from a state of homogeneity, indefiniteness, and incoherence to a state of heterogeneity, definiteness, and coherence.

With the aid of these demonstrated truths of Physics, we have surveyed the history of the knowable universe, intent upon finding some provisional answer to the time-honoured question of Philosophy — whence came we, what are we, and whither do we tend? Throughout all the provinces of nature we have traced that aspect of the stupendous process of Evolution, which consists in the transition from indefinite incoherent homogeneity to definite coherent heterogeneity. We have seen it exemplified in the development of our planetary system from a relatively homogeneous ball of vapour. We have witnessed it as shown in the increasing phy-

sical and chemical diversity and interdependence of the various portions of the surface of our cooling earth, and in those wonderful differentiations by which solar radiance is metamorphosed into the innumerable forms of energy manifested alike by winds and waves, by growing plants and animals, and by reasoning men. We have described it in some detail as revealed in the gradual change of a seed into a tree and of an ovum into an adult mammal. We have observed it also in the increasing chemical complexity which at a remote epoch resulted in the formation of living protoplasm ; and we have seen how from this earliest protoplasm there have arisen, in the course of ages well-nigh infinite in duration, the myriad forms of animal and vegetable life. The progress toward higher complexity and higher organization has likewise been discovered to be taking place in *processes* as well as in *things*. It has been shown that Life is a process, consisting in a series of adjustments between the organism and its environment; and that Mind, objectively considered, is a special form of Life, consisting in a specialized portion of the series of adjustments. In these wondrous processes we have found the Law of Evolution most beautifully exemplified ; the degree of Life, or of Mind, being high in proportion not only to the extent which the adjustments cover, but also to their complexity, definiteness, and coherence.

That superadded process known as Civilization or social progress has also been shown to consist in a series of adjustments between the community and its environment, in the course of which society becomes ever more and more complex and more interdependent in its various elements. That moral sense which underlies social progress and renders it possible has been exhibited as the noble product of the slow organization of those feelings of pleasure and pain which, in highly developed organisms, are mainly concerned in enhancing the perfectness of the adjustments in which Life consists. And finally we have witnessed the wonderful complication of coöperating processes by which Humanity — the crown and glory of the universe as we know it — has been evolved from a lower type of animal life, in entire conformity to the general law. The direct and relatively simple processes of physical adjustment became at length almost wholly subordinated to the indirect and relatively complex processes of psychical adjustment, so that variations in intelligence came to be selected in preference to variations in physique; the increased complexity of psychical adjustments entailed the lengthening of the period required for organizing them; the lengthening of infancy, thus entailed, brought about the segregation, into permanent family groups, of individuals associated for the perform-

ance of sexual and parental functions; the maintenance of such family groups involved the setting up of permanent reciprocal necessities of behaviour among the members of the group; in this way the ultimate test of right and wrong action came to be the welfare of the community, instead of the welfare of the individual; the long process of social evolution thus inaugurated has all along reacted upon individual evolution, by increasing the power of mental representation and nourishing sympathy at the expense of egoism; and thus, through one and the same endlessly complicated plexus of causes, has arisen the historic Man, with his Intellect and his Moral Sense. Yet endlessly complicated as the process has been, we see that it is throughout definable as the gradual substitution of adjustments that are relatively indirect, heterogeneous, and highly organized, for adjustments that are relatively direct, homogeneous, and slightly organized.

Thus we have fulfilled all the requirements laid down in the concluding chapter of our Prolegomena. We have found a hypothesis which is based upon properties of matter and principles of dynamics that have previously been established; which appeals to no unknown agency and invokes no unknown attribute of matter or motion; and which, accordingly, contains no unverifiable element. This hypothesis has been

successfully subjected to both deductive and inductive verification. In every department of nature it has triumphantly borne the supreme test of reconciling the order of conceptions with the order of phenomena. And in our sociological chapters, as well as in the chapters on the Genesis of Man, it has enabled us to detect relations among phenomena which had hitherto remained in obscurity.

It remains to add that this grand hypothesis, for the conception and elaboration of which I have ventured to liken Mr. Spencer to the thinker who conceived and elaborated the hypothesis of gravitation, affords in itself a striking illustration of that process of Evolution which it formulates. Considered as an event in intellectual development, this discovery is an immense *extension in time* of the correspondence between the order of human conceptions and the order of phenomena, as Newton's discovery was an immense extension of the correspondence in space. The one has enabled us to adjust our mental sequences to phenomena as distant as the Milky Way ; the other carries back the adjustments till they comprehend the birth of the Solar System. The announcement of a verifiable Law of Evolution is but the most recent phase of a process which has been going on from the time when men first began to speculate about the world of phenomena, — the

process of substituting what may be called dynamical habits of thought for statical habits. Clearly the formation of a theory of the universe, whether as expressed in the crude mythologies of the barbarians or in the elaborate systems of modern philosophers, is the establishment of a complex group of subjective relations that are either very imperfectly or much more completely adjusted to objective relations. All men now existing, whether civilized or savage, with the exception of idiots and very young children, possess some such theory, however vague and shadowy it may be. Such general statements as may be made by the most ignorant boor obviously imply some dim conception of the world and of his relations to it. Even the beliefs that the moon is about the size of a cheese, or that the devil has bewitched his cattle, are parts of a rudimentary kind of cosmic philosophy. Now among uneducated persons, alike in barbarous and in civilized countries, the crude philosophies current universally imply that the general arrangement of things is everywhere and in all ages substantially the same as it is witnessed by them in their immediate environment. Their theories are not adjusted to remote facts in time and space which only a thorough education could have added to their experience. They take what we may call a statical view of things. Hence they suppose

that God created the world a few thousand years ago in nearly the same condition in which we now behold it; traditional observances, such as the keeping of a Sabbath, advanced social institutions, like monogamy, and highly elaborated philosophical doctrines, such as monotheism, are unhesitatingly referred back to the beginning of the world; and it is in general taken for granted that the thoughts and feelings current in past ages were like the thoughts and feelings current in our own. Until within the last three or four generations this statical view of things was shared by cultivated with uncultivated people, though with somewhat different degrees of narrowness. On the other hand the dynamic view of things, represented by the Doctrine of Evolution, which regards the universe and all that is in it as presenting a different aspect from epoch to epoch, obviously results from the adjustment of our theories to longer and longer sequences in the past. The progress of geologic discovery, revealing the immense antiquity of the earth, was one of the circumstances which began to arouse in educated people a tendency to regard things as continually though slowly changing — and the theories of Goethe and Lyell, the revolution in biology wrought by Lamarck and Cuvier, and the application of the comparative method to the historic and philologic interpretation of past states of society, deep-

ened and strengthened this tendency. In no other respect is the present age so widely distinguished from past ages as in this habit of looking at all things dynamically. It is shown in the literary criticism of Sainte-Beuve, and the art criticism of Taine, and in the historical criticism of Mommsen or Baur, no less than in Mr. Darwin's science, or Mr. Spencer's philosophy. In our concluding chapter we shall observe some of the practical bearings of this great difference in mental habit between the eighteenth and nineteenth centuries, with especial reference to the political utopias of Rousseau, and to the attempts of the *Encyclopédistes* to overthrow Christianity. It is enough for us now to bear in mind that this immense widening of the mental horizon which modern times have witnessed, this power of criticising sympathetically the relatively rude theories, customs, and prejudices of bygone generations, this ability to realize in imagination a time when forms of life now wholly distinct were represented by a common ancestral type, or a time when the material universe existed in a shape very different from that in which it is presented to our senses, this growing tendency to interpret groups of phenomena by reference to other groups of phenomena long preceding, are all alike explicable, in an ultimate analysis, as a prodigious extension in time of the correspond-

ence between the human mind and its environment.

The Doctrine of Evolution, in which this dynamical habit of viewing things is reduced to a system, represents also the most extensive integration of correspondences that has yet been achieved. The continuous organization of scientific truths by philosophy has all along been a progress in this kind of integration. From the very first crude observations and the earliest cosmical theories, it is true that succeeding observations have all along had their results incorporated with the cosmical theories, or else new cosmical theories have been framed, which, by including the results of more mature observation, have superseded the old ones. In this way the progress of philosophy has on the whole kept pace with that of science. But between the earlier systems and the more modern ones there is a marked difference in the extent to which special truths in different departments of science are made to support and illustrate each other. For the gaps in the scientific knowledge synthesized in older systems were so considerable that, in order to make a synthesis at all, it was necessary to incorporate a large amount of hypothetical speculation which was not only unverified but unverifiable; so that the relations between science and philosophy were much less coherent than at present. To-

day the interdependence is more complete than ever before. Our cosmic theories are rapidly modified by the incorporation of the results of countless new observations in all departments of science; and philosophy, refraining more and more from ontological speculations, is becoming more and more thoroughly identified with cosmology. It is recognizing more and more fully that its proper business is to oversee and coördinate those seemingly separate groups of scientific truths which scientific specialists have not the leisure, and often neither the desire nor the ability, to coördinate. And obviously the philosophy most completely organized after this manner constitutes the most complete integration of correspondences between the order of conceptions and the order of phenomena. It constitutes an integral body of knowledge, the various members of which are at once more distinctly demarcated from each other and more intimately dependent upon each other than in any previous system.

Thus, in accordance with the expectation held out in an earlier chapter,[1] we find that "from the earliest traceable cosmical changes down to the latest products of civilization," there has been going on, and is going on, a ceaseless process of change, of which the main features are simple enough to be clearly deducible from the

[1] See above, vol. ii. pp. 244, 245.

known physical properties of the universe, but of which the stupendous grandeur is such as to baffle the most strenuous efforts alike of reason and of imagination to follow it out in all its concrete details. Thus, too, we find ourselves amply rewarded for the hope with which we set out upon our inquiry, — namely, that in henceforth abandoning vain ontological speculation we were by no means about to dethrone Philosophy, but were on the point of winning for it even a goodlier realm than that which metaphysics had assigned to it. For in comparison with the sublime synthesis of truths which the foregoing chapters have but unworthily interpreted, all previous philosophic speculation seems fragmentary, crude, and unsatisfying. To no other theory of things yet devised by the wit of man can we so well apply the enthusiastic exclamation of Giordano Bruno: "Con questa filosofia l'anima mi s'aggrandisce, e mi si magnifica l'intelletto."

But while one part of our task has thus been fairly accomplished, another and equally important part still remains to be disposed of. Questions have from time to time been implicitly suggested, to which provisional answers must be given before our Cosmic Philosophy can be regarded as satisfactorily expounded, even in outline. That great Doctrine, for the establish

ing of which all departments of human knowledge have been laid under contribution, and which in turn is fast remodelling human thinking on all subjects whatever, has relations of the closest sort with religious philosophy. Sundry theological questions raised in the course of our Prolegomena must now be considered in the light of the general principles with which our survey of universal evolution has furnished us. Questions concerning God and the Soul, which the Positive Philosophy simply set aside as unworthy the attention of scientific thinkers, nevertheless cannot be ignored by any philosophy which seeks to bring about a harmony between human knowledge and human aspirations; and though we may confess ourselves unable to settle such questions, as scientific questions are settled, we may yet go as far as is possible without deserting the objective method, and indicate the position which we occupy with reference to them. We have already, in the earlier part of this work, been brought to the conclusion that the phenomenal universe is the manifestation of a Divine Power that cannot be identified with the totality of phenomena:[1] we have now to unfold, somewhat more fully, what is meant by this theistic conclusion. We have, at every fitting opportunity,

[1] This is implied in the statements in vol. i. p. 128, and also in the chapter on "Anthropomorphism and Cosmism." See also vol. ii. pp. 3, 4.

declared that the phenomena of Mind can in no wise be explained as movements of Matter,[1] while at the same time a law of evolution, expressed in terms of matter and motion, is found to include the order of sequence of psychical phenomena: we must now attempt to clear away the difficulties which, to many minds, no doubt cluster around the seeming paradox. We have also hinted that beside the sphere to be assigned to Morality, there is a wider sphere to be assigned to Religion:[2] it behooves us now to show what are the general functions of religion, in accordance with our fundamental view of Life as an adjustment between inner and outer relations. And after having done what we can to elucidate these points, we must conclude by describing the critical attitude which our Cosmic Philosophy occupies with reference to other systems of belief and other principles of action.

The central problem, which must first occupy us, and the decision of which will affect the treatment of all the others, is the problem of Theism. What kind of theism is it which is compatible with the conclusions reached in the second part of this work concerning the past and present states of the universe? In discussing this question we shall presently find that the phase of theism which has until quite recently

[1] See vol. ii. pp. 124, 334; vol. iii. pp. 116, 238.

[2] See above, pp. 153, 154.

been the current phase, and which is still the phase officially defended by theologians, does not appear to be compatible with the conclusions referred to. As in treating of the preliminary evidence for the evolution of the higher forms of life from lower forms, we found ourselves at every step arrayed in opposition to the doctrine of special creations bequeathed to us by ancient mythology, so now upon this wider ground we shall have to note that the Doctrine of Evolution is throughout irreconcilably opposed to the Doctrine of Creation, so that the establishment of the former is in fact synonymous with the overthrow and destruction of the latter. In coming to regard the universe as evolved in accordance with discernible physical laws, working throughout a lapse of time to which human thinking can assign neither a beginning nor an end, we cease to regard it as created at any given point of time in accordance with a preconceived plan remotely analogous to the plans by which finite intelligence adapts means to ends. It is not, as we shall see in a moment, that the one conception metaphysically refutes the other, but that it practically supersedes it, and enables philosophy to dispense with it. While upon the time-honoured statical view of things, any given group of phenomena was explained by a reference to the direct creative action of a divine Power extraneous to the Cosmos; on the other

hand, upon the modern dynamical view of things, any given group of phenomena is explained by a reference to some antecedent group of phenomena, while all phenomena alike are regarded as the sensible manifestations of a divine Power immanent in the Cosmos. It becomes desirable, therefore, to inquire whether on the new view there is any ground for assuming, as was necessarily assumed on the old view, that the divine Power works by methods analogous to human methods. The question which we have to answer is not whether there exists a God. As was clearly shown in the first part of this work, and as will presently be still more emphatically reiterated, our Cosmic Philosophy is based upon the affirmation of God's existence, and not upon the denial of it, like irreligious Atheism, or upon the ignoring of it, like non-religious Positivism. The question which we have now to answer concerns the existence of a limited personal God, who is possessed of a quasi-human consciousness, from whose quasi-human volitions have originated the laws of nature, and to whose quasi-human contrivance are due the manifold harmonies observed in the universe. Is this most refined and subtilized remnant of primitive anthropomorphism to be retained by our Cosmic Philosophy, or is it to be rejected? And if it is to be rejected, what are the grounds which justify us in rejecting it?

Let us not forget, in stating the question, that we are now in a region of thought where absolute demonstration, in the scientific sense, is impossible. I believe it is beyond the power of science to prove that the divine Power immanent in the Cosmos either does or does not work by anthropomorphic methods. We cannot expect, therefore, to obtain a result which, like a mathematical theorem, shall stand firm through mere weight of logic, or which, like a theorem in physics, can be subjected to a crucial test. We can only examine the arguments upon which the anthropomorphic hypothesis is founded, and inquire whether they are of such a character as to be convincing or satisfactory to thinkers who rigidly adhere to the Doctrine of Evolution, who assert the relativity of knowledge, and who refuse to reason upon the subjective method. If, then, it turns out that these arguments are not thus satisfactory, it will follow that, as the Doctrine of Evolution becomes more and more widely understood and accepted, the anthropomorphic hypothesis will generally fall into discredit, not because it will have been disproved, but because there will be no sufficient warrant for maintaining it. Or — to restate the case — if the hypothesis which represents God as working after quasi-human methods be found harmonious with the scientific truths upon which our Cosmic Philosophy rests, it may survive

the complete establishment of that philosophy; but if otherwise, it will perish, as other doctrines have perished, through lack of the mental predisposition to accept it. It is, indeed, generally true that theories concerning the supernatural perish, not from extraneous violence, but from inanition.[1] The belief in witchcraft, or the physical intervention of the Devil in human affairs, is now laughed at; yet two centuries have hardly elapsed since it was held by learned and sensible men as an essential part of Christianity. It was supported by an immense amount of testimony, which no one has ever refuted in detail. No one, for example, has ever disproved witchcraft, as Young disproved the corpuscular theory of light. But the belief has died out because scientific cultivation has rendered the mental soil unfit for it. The contemporaries of Bodin were so thoroughly predisposed by their general theory of things to believe in the continual intervention of the Devil, that it needed but the slightest evidence to make them credit any particular act of intervention. But to the educated man of today such intervention seems too improbable to be admitted on any amount of testimony. The hypothesis of diabolic interference is simply

[1] "Ce n'est pas d'un raisonnement, mais de tout l'ensemble des sciences modernes que sort cet immense résultat — il n'y a pas de surnaturel." Renan, *Etudes d'Histoire Religieuse*, p. 206.

ruled out; and will remain ruled out. So with what is called "spiritualism," or the belief in the physical intervention of the souls of the dead in human affairs. Men of science decline to waste their time in arguing against it, because they know that the only way in which to destroy it is to educate people in science. "Spiritualism" is simply one of the weeds that spring up in minds uncultivated by science. There is little use in merely pulling up one form of the superstition by the roots, for another form, equally noxious, is sure to take root: the only way of ensuring the destruction of the pests is to sow the seeds of scientific truth. When, therefore, we are gravely told what persons of undoubted veracity have seen, we are affected about as much as if a friend should come in and assure us, upon his honour as a gentleman, that heat is not a mode of motion. The case is the same with the belief in miracles, or the physical intervention of the Deity in human affairs. To the theologian such intervention is *a priori* so probable that he needs but slight historic testimony to make him believe in it. To the scientific thinker it is *a priori* so improbable that no amount of historic testimony, such as can be produced, suffices to make him entertain the hypothesis for an instant. Hence it is that such critics as Strauss and Renan, to the great disgust of theologians, always assume, prior to argument, that miraculous nar-

ratives are legendary. Hence it is that when the slowly dying belief in miracles finally perishes, it will not be because any one will ever have refuted it by an array of syllogisms: the syllogisms of the theologian and those of the thinker trained in science have no convincing power as against each other, because neither accepts the major premise of the other: but it will be because the belief is discordant with the mental habits induced by the general study of science. Hence it is that the scientific philosopher is averse to proselytism, and has no sympathy with radical infidelity. For he knows that theological habits of thought are relatively useful, while scepticism, if permanent, is intellectually and morally pernicious. Knowing this, he knows that the only way to destroy theological habits of thought without detriment is to nurture scientific habits, — which stifle the former as surely as clover stifles weeds.

The belief that God works after quasi-human methods is akin to those just cited, in being incapable of proof or disproof by mere syllogism. Our business is only to determine whether the arguments in favour of it are calculated to convince those who insist upon the relativity of all knowledge, and whether the belief itself can be made to harmonize with the scientific truths upon which our Cosmic Philosophy is based.

Let us begin by examining the doctrine of final causes, as defended by metaphysical arguments; and let us afterwards observe how this famous argument from design is affected by the theory of evolution.

CHAPTER II

ANTHROPOMORPHIC THEISM[1]

THOUGH the mediæval conception of an arbitrary Providence, overruling natural laws and occasionally setting them aside, influenced by human petitions to bring about special results by extraordinary means, and singling out nations or individuals as the objects of its favour or displeasure, has been partially abandoned for a more refined conception of theism, in which the Deity is represented as working through natural laws; yet the survival of the doctrine of final causes shows that a strong element of anthropomorphism is retained even in the latter conception. The doctrine of final causes ultimately reposes on the assumption that God entertains intentions and purposes closely resembling in kind, though greatly excelling in degree of sagacity, the purposes and intentions of man. In accordance with this view, we are told that it will not do to content ourselves with the discovery of Law, but that we must also look about for indications of Purpose; since Law is not, relatively to our

[1] [See Introduction, §§ 28, 29.]

human understanding, an ultimate fact, but may be recognized by us as the expression of the will of a Lawgiver. Everything that exists — it is said — has been created to subserve some design, and as a means to the accomplishment of some end ; and the detection of this end, the penetration of this design, must assist us greatly in the scientific study of the universe. Not only must we inquire, with Sokrates, into the divine purposes subserved by the structure of the eyes and the position of the alimentary canal ;[1] but we shall also find it desirable to interpret the design exhibited in the inclinations of the planetary axes ; and our knowledge of chemistry must be deemed incomplete until we have ascertained the creative plan in the arrangement of combining equivalents.[2] Not only will light thus be thrown upon many facts which would else have remained forever wrapped in impenetrable darkness ; but the mere recognition of an anthropomorphic purpose or providence in the constitution of things is said to afford unfailing consolation amid perplexity and

[1] Xenophon, *Memorabilia*, vol. i. p. 4, § 6.

[2] "The inorganic world, considered in the same light, would not fail to exhibit unexpected evidences of thought, in the character of the laws regulating chemical combinations, the action of physical forces, the universal attraction, etc. Even the history of human culture ought to be investigated from this point of view." Agassiz, *Essay on Classification*. p. 199.

suffering. He who cherishes the belief in the conscious supervision of a personal Deity is held to possess the surest of safeguards against scepticism and despair.

A hypothesis which holds out such brilliant hopes may well be retained in our Cosmic Philosophy, if it can be shown to be in harmony with the demonstrated scientific truths upon which that philosophy rests. But if this cannot be done, then the hypothesis must be discarded, even though it should carry with it all our hopes and wishes in indiscriminate ruin. It has been well said that "we must follow Truth, though she lead us to Hades." The noble quest in which Science engages is the quest, not of faith or of consolation, but of truth; and, with the scientific philosopher, loyalty to truth is the first principle of religion. The disagreeableness of a well-supported conclusion furnishes no sort of justification for not accepting it, save to those minds which are irreligious as well as unscientific. He who is loyal to Truth will never harbour the misgiving that her paths may lead to Hades: he will fearlessly follow the guidance of Science, never doubting that consolation must come of knowing the truth. In the present case we shall find reason to conclude that the hypothesis of a quasi-human God is likely to aggravate rather than to relieve the mental distress of scepticism.

The doctrine of final causes we may first contemplate, for a moment, under its logical aspect, and notice that, even if it were true, it could never have the value which is claimed for it as a means of investigation. Even admitting that all things have been created with forethought, and that the harmonious coöperation of phenomena is the fruit of contrivance, it is none the less undeniable that this forethought cannot be perceived, the threads of this contrivance cannot be unravelled by us, until the laws to which phenomena conform have already been discovered. Previous to Newton, for instance, all attempts to detect design in the structure of the solar system must have shared the fate of the quite different guesses of Descartes and others as to its physical conditions. Evidences of design, therefore, in order to be trustworthy, must be deduced from known laws, and cannot safely be employed as stepping-stones to the discovery of new truths. However plausible they may seem as corollaries, they can never be useful as lemmas or postulates. As M. Scherer well observes, God is the cause of all things, but the explanation of nothing.[1] Ac-

[1] "Dieu, comme on l'a très-bien dit, est la cause de tout, mais il n'est explication de rien." Scherer, *Nouvelles Etudes sur la Littérature Contemporaine*, p. 408. See also Geoffroy Saint-Hilaire, *Anomalies de l'Organisation*, tom. iii. p. 608. The only objection which can be made to M. Scherer's

cordingly, unless we are so arrogant as to lay claim to the possession of some direct means of insight into the Divine purposes,[1] what is left for us but to content ourselves with the humbler means of research lying everywhere at our disposal — with being "servants and interpreters of nature," as the great master of inductive inquiry so wisely and modestly said?

Not only does the teleological theory thus appear to be useless, from a scientific point of view, but its claim to philosophic validity is open to serious doubt. Looking at it historically, we observe that its career has been that of a perishable hypothesis born of primeval habits of thought, rather than that of a permanent doctrine obtained by the employment of scientific methods. From time to time, with the steady advance of knowledge, the search for final causes has been discarded in the sim-

statement is its disjunctive form. Obviously that which is the cause of everything *cannot* be the explanation of anything. We cannot explain any particular group of phenomena by a reference to divine action, because such a reference is merely a reference to the source of all phenomena alike, and hence cannot give us specific information concerning any particular group. Laplace was therefore quite justified in saying "Je n'ai pas besoin de cette hypothèse."

[1] As Descartes somewhere says, "Nous rejetterons entièrement de notre philosophie la recherche des causes finales ; car nous ne devons pas tant présumer de nous-mêmes que de croire que Dieu nous ait voulu faire part de ses conseils."

pler sciences, until it is now kept up only in the complex and difficult branches of biology and sociology. As Laplace observes, final causes disappear as soon as we obtain the data requisite for resolving problems scientifically. Even Dr. Whewell, the great champion of the teleological method in our day, admits that it must not be applied to the inorganic sciences — which amounts to the confession that, wherever we know enough, we can very well do without it.[1] Creative design, however, if manifested at all, is probably not confined to a limited department of nature ; and therefore the rejection of teleology by the most advanced sciences augurs ill for its ultimate chances of survival in any field of inquiry. Previous to the researches of Kant

[1] Laplace, *Essai sur les Probabilités*, p. 87 ; Whewell, *History of the Inductive Sciences*, vol. iii. p. 430. Even in biology the principle does not always work well : "A final purpose is indeed readily perceived and admitted in regard to the multiplied points of ossification in the skull of the human fœtus and their relation to safe parturition. But when we find that the same ossific centres are established, and in similar order, in the skull of the embryo kangaroo, which is born when an inch in length, and in that of the callow bird that breaks the brittle egg, we feel the truth of Bacon's comparison of final causes to the Vestal Virgins." Owen, *The Nature of Limbs*, p. 39. Or, as Professor Huxley very happily observes, they "might be more fitly termed the *hetairæ* of philosophy, so constantly have they led men astray." *Lay Sermons*, p. 255.

and Laplace, such phenomena as the distribution of satellites and the inclinations of planetary axes were explained teleologically. These phenomena having been at last interpreted by a reference to universal laws of matter and motion, the teleological hypothesis took refuge in biology, where it held for a while a doubtful tenure, as a means of explaining the origination of specific forms of life. The discoveries of Mr. Darwin having gone far toward driving it from this stronghold, replacing the conception of miraculous interposition by the conception of natural selection, it is nevertheless still appealed to by such writers as Mr. Wallace and Mr. Mivart, as furnishing an explanation for sundry phenomena of organic evolution which natural selection, taken alone, seems at present incompetent to account for. In short, the teleological hypothesis derives its apparent confirmation never from the phenomena which were explained yesterday, but always from the phenomena which are awaiting an explanation tomorrow. "I give up phenomenon A," says the theologian, "for that you have explained in terms of matter and motion; but phenomenon B you can never so explain, and upon that I therefore rest my teleological hypothesis." Tomorrow phenomenon B is interpreted in terms of matter and motion, and appeal is made to phenomenon C; and so on, to the end of the

alphabet. Now the cosmic conception of Deity, as we shall hereafter see, being planted in the region of the Unknowable, which is coextensive with that of the Knowable, has no such precarious tenure, and all that the progress of discovery can do is to enlarge and strengthen it. But the anthropomorphic conception, lodged in that ever diminishing area of the Knowable which is to-day unknown, is driven from outpost to outpost, and robbed of some part of its jurisdiction by every advance of science. Surely that must be an unworthy conception of Deity which is confessedly based on those limitations alone of finite phenomenal knowledge, which each day's experience proves more and more clearly to be but temporary. Surely the teleological hypothesis is built upon a rotten foundation, when it has to dread the shock of each advancing wave of knowledge. Surely it is no less irreverent than unphilosophical to rest our faith in God's existence upon the alleged impossibility of interpreting in terms of matter and motion the beginnings of life, the cross-relations between marsupials and monodelphia, or the structure of the ears and eyes of a cephalopod.

Further to develop this argument would be premature, in the absence of explanations to be given in the next chapter. Contenting ourselves for the present with this brief indication,

let us now approach the subject somewhat more closely, and examine certain metaphysical arguments upon which it has lately been sought to base an elaborate teleological theory. The "Inquiry into the Theories of History," by Mr. William Adam, presents us with what is probably the last form of the attempt to carry on scientific research by theological methods, and two or three of its arguments may here be fitly noticed, as typical of the entire class to which they belong.

Mr. Adam accepts, with some qualifications, the doctrine of Descartes and Spinoza, that causes resemble their effects. He holds that physical, intellectual, and moral causes respectively resemble their physical, intellectual, and moral effects; and hence infers that the Deity, as a moral and intellectual cause, must resemble the effect Man — must therefore purpose, contrive, and exert volition. The conclusion would have more weight, were it not so manifestly begged in the premise. Next, even in this modified shape, the rule that causes resemble their effects is hampered by awkward exceptions, in dealing with which Mr. Adam has not been fortunate. Assuming, for example, that heat is the cause of steam, he maintains the likeness of the cause to its effect on the ground that both are *in a state* of molecular agitation! The mental confusion which resulted in this extraordi-

nary statement is still more explicitly revealed in the assertion that "heat is like steam, as being both physical objects." So, then, we get some conception of the kind of science with which anthropomorphism is practically compatible. Heat, it seems, is a physical object in a state of molecular agitation!! The ordinary physicist will certainly object that heat, being the state of molecular agitation, can hardly be called, with propriety, the physical object. And the logician will add that, even if it could be so called, an argument would hardly be thought convincing which should rest upon the alleged resemblance of a billiard-table to a rhinoceros — yet these are both physical objects. Mr. Adam is equally unhappy in his answer to Mr. Mill's humorous criticism of Descartes. Parodying the celebrated maxim, — *Si enim ponamus aliquid in idea reperiri quod non fuerit in ejus causa, hoc igitur habet a nihilo*, — Mr. Mill observes that "if there be pepper in the soup, there must be pepper in the cook who made it, since otherwise the pepper would be without a cause." Mr. Adam's reply savours strongly of mediæval realism. The cook, he says, is not indeed the efficient cause of the pepper, but the cook's *intelligence* is the efficient cause of the *intelligence* displayed in the mixture of the ingredients of the soup — so that even here the cause is like the effect! Comment is not needed.

Human ingenuity is indeed pushed to the limit of its tether when by a play upon words it tries to liken a physical combination of salt, pepper, and meat-juice to an intellectual coördination of experiences.

Apart from these ill-chosen and ill-managed examples, the Cartesian argument, as modified by Mr. Adam, appears to stand as follows: — When a physical event, such as the pulling of a trigger, is followed by another physical event, such as the firing of a pistol, the antecedent resembles the consequent, since both are physical events. When an intellectual event, such as the rising into consciousness of the idea of Hamlet, is followed by another intellectual event, such as the ideal representation of a crowded theatre, the antecedent resembles the consequent, since both are intellectual events. When a moral event, such as a fit of ungovernable passion, is followed by another moral event, such as a bitter sense of remorse, the antecedent is like the consequent, since both are moral events. Therefore the primal Cause, antecedent to the whole compound series of intellectual and moral events, must be intellectual and moral in its nature.

Underneath this whole argument there lies an ill-concealed *petitio principii*. Three parallel lines of causal sequence being set up, it is unwarrantably assumed that causal relations hold only between the successive members of each

separate series, or in other words, that there are no causal relations between the members of one series and the members of another. A single instance of causal relation between a material event and an intellectual or emotional event — such as the relation between certain atmospheric undulations communicated from violin strings to the auditory nerve, and the consequent recognition of the triad of A-minor, with the accompanying pleasurable feeling — is fatal to the argument. Waiving this objection, however, and for the moment admitting that the universe, as containing intellectual and moral phenomena, requires an intellectual and moral Cause, we may note that the argument proves altogether too much. Since the universe contains material, as well as psychical phenomena, its First Cause, according to Mr. Adam's argument, must partake of all the differential qualities of those phenomena. If it reasons and wills, like the higher animals, it must also, like minerals, plants, and the lowest animals, be unintelligent and unendowed with the power of volition, — which requires in the First Cause a more than Hegelian capacity for uniting contradictory attributes. Else we must suppose its causal action to be confined to man, and those other animals which manifest intelligence and volition, while the rest of the universe either seeks another First Cause, or goes without one. All these are alike con-

clusions which philosophy cannot for a moment tolerate, and which are as shocking to science as to religion.

A still more fatal criticism remains to be made. Considered as a modification of the Cartesian doctrine, Mr. Adam's theory is entirely illegitimate: it is the product of a gross misconception of the Cartesian doctrine. All these causes and effects, so carefully but unskilfully compared by Mr. Adam, are *phenomenal* antecedents and consequents; and even supposing the universal resemblance of phenomenal causes to phenomenal effects to be fully made out, the anthropomorphic argument is not helped in the least. Until a *phenomenal* effect can be brought into juxtaposition and compared with its *noumenal* cause, the argument has no logical validity; but because of the relativity of all knowledge, this can never be done. To call the First Cause a phenomenon is to make a statement that is self-contradictory; since phenomena exist only by virtue of their relation to human (or animal) consciousness. The First Cause, being absolute and infinite, is a noumenon, and no amount of resemblance, alleged or proved, between various orders of its phenomenal effects, can bear witness to any resemblance between a phenomenal effect and the noumenal Cause. The phenomena of motion, for example, exist as phenomena only in so far as they are cognized; and

the very constitution of the thinking process renders it impossible for us to assert similarity between the phenomenon and the thing in itself. Indeed a comparison between the various phenomena of motion gives us good ground for believing that there can be no such thing as resemblance between the phenomena and their noumenal cause. At the beginning of this work it was shown that the objective reality underlying the phenomena of heat, light, actinism, and mechanical vibration cannot be held to resemble one of these sets of phenomena more than another, and accordingly cannot be held to resemble any of them. And this conclusion, thus forced upon us by concrete examples, is the only one consistent with what we know of knowledge. Obviously the phenomena cannot be held to be like the objective reality without ignoring the circumstance that the mind is itself a factor in the process of cognition. Now the Cartesians, with more insight into the exigencies of the case than is shown by Mr. Adam, unflinchingly asserted that phenomenal effects are like noumenal causes, — that whatever is in the subjective conception is also in the objective reality. As a proposition in psychology, this is a denial of the relativity of knowledge. As a canon of logic, this is the proclamation of the subjective method. Hence, though the metaphysician and the theologian may adopt an anthropomorphic hypo-

thesis founded upon such an argument, it is impossible for a scientific philosopher to do so.

The attempt to establish the anthropomorphic hypothesis by means of the volitional theory of causation is, from the scientific point of view, equally futile. From first to last, as was fully demonstrated in the chapter on Causation, the argument of the volitionists is made up of pure assumptions. From the unwarranted ontological postulate that Will is a noumenal or efficient cause of muscular action in animals, it proceeds, by a flagrant *non sequitur*, to the equally unwarranted conclusion that Will is the noumenal or efficient cause of all the dynamic phenomena of the universe, and must therefore be the First Cause. Volition being asserted to be the only source whence motion can originate, it is affirmed that, save on the hypothesis of a Supreme Will, the activity of nature baffles comprehension. The reply of the scientific critic is that, in an ultimate analysis, the activity of nature does, and must ever, baffle comprehension; and that, upon any hypothesis framable by our intelligence, whether theistic or non-theistic, the origination of motion must remain not only incomprehensible but inconceivable. Relatively to our finite power of apprehension, motion is to be regarded, like matter, as eternal.[1] The un-

[1] Or — to state the same thing in another form — the possibilities of thought are limited by experience; and experience

thinkableness of the creation or destruction of matter or motion is involved in the axiom that force is persistent, which is the fundamental axiom of all science and of Cosmic Philosophy. Whether motion, considered apart from our power of apprehension, ever had a beginning or not, is a question which cannot concern us as scientific thinkers. To assert that it had is to put into words a hypothesis that cannot be translated into thought, and to assume Volition as its primal antecedent is to frame an additional hypothesis that is essentially unverifiable. Phenomenally we know of Will only as the cause of certain limited and very peculiar kinds of activity displayed by the nerves and muscles of the higher animals. And to argue from this that all other kinds of activity are equally caused by Will, simply because the primal origination of motion is otherwise inexplicable, is as monstrous a stretch of assumption as can well be imagined. While to contend — as many have done — that because human volitions are attended by a sensation of effort, there is there-

furnishes no data for enabling us to conceive a time, either past or future, when the Unknowable would be objectively manifested to consciousness otherwise than in movements of matter. But this, it should be remembered, applies solely to our powers of conception. Thought is not the measure of things, and where the region of experience is transcended, the test of inconceivability becomes inapplicable. See above, vol. i. p. 14.

fore effort in each case of causation, is much like identifying gravitative force with the sensation of weight by which the attempt to overcome it is always accompanied.[1]

The last of the *a priori* arguments which it is necessary to notice in this connection is that which infers the existence of an intelligent Lawgiver from the omnipresence of Law. "The proofs of necessary law and of an intelligent will . . . remain undeniable," says Mr. Adam, "and no hardihood of assertion can annul them; and when an attempt is made to bring both into logical connection, the mind, not only without violence to its powers, but on the contrary with a clear perception of necessary congruity, believes that law must proceed from a lawgiver, beneficent laws from a moral ruler. To disjoin an intelligent will from necessary law is to shake our confidence in the perpetuity and salutary operation of law itself. The conception of law without will is that of agency without an agent: the conception of will without law is that of an agent without agency. Necessary law is the constant expression of the divine will." Upon this point Mr. Adam repeatedly insists in the course of his work,[2] asserting again and again

[1] See above, vol. i. p. 231.

[2] Adam, *Theories of History*, pp. 92, 130, 180, 189, 209, 222, 281, 284, 404. The passage just cited is to be found on p. 192.

that, without admitting "this great central conception of a Supreme Will," the laws of nature must forever remain unintelligible. Let us not fail to note that Mr. Adam's conception of theism, as here illustrated, is far more refined, and far less hostile to scientific inquiry, than the conception of theism embodied in the accepted creeds of theologians, and officially defended from the pulpit. Those who adopt Mr. Adam's conception will, if consistent, welcome, instead of opposing, every scientific interpretation of phenomena hitherto deemed supernatural — since, in the above passage, God is clearly regarded as manifesting himself in order and not in disorder, in method and not in caprice, in law and not in miracle. With this view our Cosmic Philosophy thoroughly coincides; and eliminating the anthropomorphism from Mr. Adam's statement, I, for one, will heartily join in the assertion that "necessary law is the constant expression of the divine *working*." But the connection asserted between universal law and a supreme quasi-human Will is one which a scientific philosophy cannot admit, for it rests upon a mere verbal equivocation. The inference from community of name to community of nature, however appropriate it might have seemed to the realists of the twelfth century, is in our day hardly admissible. Because the word "law" is used to describe alike the generalizations of

Kepler and the statutes enacted by a legislative body, we must not infer, with a naïveté worthy of the schoolmen, that whatever is true of the one will always be true of the other. That the laws of Justinian emanated from a lawgiver is no reason for believing the same to have been the case with the law of gravitation; for the former were edicts enjoining obedience, while the latter is but a generalized expression of the manner in which certain phenomena occur. A law of nature, as formulated in a scientific treatise, is a statement of facts, and nothing more. Expressed in the indicative mood, it has nothing whatever to do with the imperative. Science knows nothing of a celestial Ukase compelling the earth to gravitate toward the sun. We know that it does so gravitate with a certain intensity, and that is the whole story. Nevertheless, so strong is the realistic tendency that, in speaking of laws of nature, the most careful writers too seldom avoid "a tacit reference to the original sense of the word *law*, . . . the expression of the will of a superior."[1] Indeed it is immediately after defining a law as "a general name for certain phenomena of the same kind, which regularly recur under the same circumstances," that Mr. Adam alludes to "the Supreme Will which *subjects* (!) all phenomena to law, and *colligates all laws into a universe* "(!). Upon such a con-

[1] Mill, *System of Logic*, vol. i. p. 348.

fusion of ideas, and amid such a chaos of terminology, is this whole argument, so far as concerns theism, unsuspectingly reared. Strip the phrase "law of nature" of this inherent ambiguity, substitute for it the equivalent phrase, "order of sequence among certain phenomena," and the anthropomorphic inference so confidently drawn from it at once disappears.

Viewed in close connection with the Doctrine of Evolution, this scholastic argument from the Law to the Lawgiver lands us amid strange and terrible embarrassments. For what is a law, in the sense in which the word is used by legislators? It is a set of relations established by the community, or by some superior mind representing and guiding the community, in correspondence with certain environing circumstances. Certain phenomena of crime, for example, tend to detract from the fulness of life of society, and to balance these phenomena a certain force of public opinion is embodied in an edict prescribing due punishments for the crimes in question. Or — slightly to vary the definition and make it more comprehensive — a law is the embodiment of a certain amount of psychical energy, directed towards the securing of the highest attainable fulness of social life. Now if, on the strength of an ambiguous terminology, we proceed to regard the "laws" of nature as edicts enjoined upon matter and motion by a

personal Ruler, shall we also, as we are logically bound to do, carry with us the conceptions of legislation with which the Doctrine of Evolution has supplied us? Shall we say that the infinite Deity adjusts inner relations to external contingencies?

Here we come upon the brink of the abyss into which the anthropomorphic hypothesis must precipitate us, if instead of passively acquiescing in it as a vague authoritative formula, we analyze it with the scientific appliances at our command. To those who have acquired some mastery of the physical truths upon which our Cosmic Philosophy is based, the doctrine not only ceases to be intellectually consoling, but becomes a source of ungovernable disturbance. For to represent the Deity as a person who thinks, contrives, and legislates is simply to represent him as a product of evolution. The definition of intelligence being "the continuous adjustment of specialized inner relations to specialized outer relations," it follows that to represent the Deity as intelligent is to surround Deity with an environment, and thus to destroy its infinity and its self-existence.[1] The eternal Power whereof the web of phenomena is but the visible garment becomes degraded into a mere strand in the web of phenomena; and the

[1] [With this passage one may contrast chapter iv. of "The Everlasting Reality of Religion," in *Through Nature to God*.]

Cosmos, in exchange for the loss of its infinite and inscrutable God, receives an anomalous sovereign of mythologic pedigree.

Nor can the theologian find a ready avenue of escape from these embarrassments in the assumption that there is such a thing as disembodied intelligence which is not definable as a correspondence between an organism and its environment, and which is therefore not a product of evolution. Experience does not afford the data for testing such a hypothesis, and to meet it with denial would accordingly be unphilosophic in the extreme. That there may be such a thing as disembodied or unembodied Spirit will be denied by no one, save by those shallow materialists who fancy that the possibilities of existence are measured by the narrow limitations of their petty knowledge. But such an admission can be of no use to the theologian in establishing his teleological hypothesis. For even granting the existence of such unembodied Spirit, the moment we ascribe to it intelligence we are using words to which experience has assigned definite meanings, and we are not at liberty to play fast and loose with these meanings. When we speak of "intelligence," we either mean nothing at all, or we mean that which we know as intelligence. But that which we know as intelligence implies a circumscribed and limited form of Being adapting its internal

processes to other processes going on beyond its limits. Save as describing such a correspondence between circumscribed Being and its environment, the word "intelligence" has no meaning whatever, and to employ it is simply to defy logic and insult common sense. In ascribing intelligence to unembodied Spirit, we are either using meaningless jargon, or we are implicitly surrounding unembodied Spirit with an environment of some kind, and are thus declaring it to be both limited and dependent. The assumption of disembodied intelligence, therefore, leaves the fundamental difficulty quite untouched.

Thus in default of all tenable *a priori* support for the anthropomorphic hypothesis, it must be left to rest, if it is to be entertained at all, upon its ancient inductive basis. In spite of the difficulties encompassing the conception, we may fairly admit that if the structure of the universe presents unmistakable evidences of divine contrivance or forethought, these evidences may be received in verification of the hypothesis which ascribes to God a quasi-human nature. And thus the possible establishment of that hypothesis must depend upon the weight accorded to the so-called "evidences of design."

From the dawn of philosophic discussion, Pagan and Christian, Trinitarian and Deist, have appealed with equal confidence to the har-

mony pervading nature as the surest foundation of their faith in an intelligent and beneficent Ruler of the Universe. We meet with the argument in the familiar writings of Xenophon and Cicero, and it is forcibly and eloquently maintained by Voltaire as well as by Paley, and, with various modifications, by Agassiz as well as by the authors of the Bridgewater Treatises. One and all they challenge us to explain, on any other hypothesis than that of creative design, these manifold harmonies, these exquisite adaptations of means to ends, whereof the world is admitted to be full, and which are especially conspicuous among the phenomena of life. Until the establishment of the Doctrine of Evolution, the glove thus thrown, age after age, into the arena of philosophic controversy was never triumphantly taken up. It was Mr. Darwin who first, by his discovery of natural selection, supplied the champions of science with the resistless weapon by which to vanquish, in this their chief stronghold, the champions of theology. And this is doubtless foremost among the causes of the intense hostility which all consistent theologians feel towards Mr. Darwin. This antagonism has been generated, not so much by the silly sentimentalism which regards the Darwinian theory as derogatory to human dignity; not so much by the knowledge that the theory is incompatible with that ancient

Hebrew cosmogony which still fascinates the theological imagination ; as by the perception, partly vague and partly definite, that in natural selection there has been assigned an adequate cause for the marvellous phenomena of adaptation, which had formerly been regarded as clear proofs of beneficent creative contrivance. It needs but to take into the account the other agencies in organic evolution besides the one so admirably illustrated by Mr. Darwin, it needs but to remember that life is essentially a process of equilibration, both direct and indirect, in order to be convinced that the Doctrine of Evolution has once for all deprived natural theology of the materials upon which until lately it subsisted.[1]

These apparent indications of creative forethought are just so many illustrations of the scientific theorem that life, whether physical or psychical, is the continuous adjustment of inner relations to outer relations. "On this fact," says Mr. Barratt, "depends the usual argument to prove the existence of God from design or

[1] That Darwinism has given the death-blow to teleology is admitted by Schleiden, — an unwilling witness. See Büchner, *Die Darwinsche Theorie*, p. 159. Haeckel also says : "Wir erblicken darin [in Darwin's discovery] den definitiven Tod aller teleologischen und vitalistischen Beurtheilung der Organismen." *Generelle Morphologie der Organismen*, tom. i. p. 160.

final *causes;* the whole strength of which is produced by a mere verbal sleight of tongue — by calling an effect a cause. Any combination of laws would produce its own proper results: hence under any constitution of the universe, good or bad, possible or impossible, as it may seem to us, it would always be true that 'whatever is, is right.' To give an instance: the particular laws of our present universe bring about night, they also cause the phenomenon sleep in animated creatures; these two naturally suit each other, being different results of the same laws — just as any two propositions in Euclid agree together. But to say that either is the final cause of the other is to transfer an idea derived from one part of ourselves, our motives to action, to an entirely different part of ourselves, our primary laws of sensation. *The earth is suited to its inhabitants because it has produced them, and only such as suit it live.*"[1] This last statement, which I have italicized, is the triumphant answer with which science meets the challenge of natural theology. It is not that the environment has been adapted to the organism by an exercise of creative intelligence and beneficence, but it is that the organism is necessarily fitted to the environment because the fittest survive. In no way can the contrast between theology and science, between Anthro-

[1] *Physical Ethics*, p. 33.

pomorphism and Cosmism, be more clearly illustrated than in this antithesis. Let us now pursue the argument somewhat farther into detail, but slightly changing for a moment the point of view, in order that we may not only show the superiority of the scientific explanation, but may also show how the anthropomorphic theory finds its apparent justification. A theory may be shattered by refutation ; but in order to demolish it utterly it must be accounted for. We shall see that from the very constitution of the human mind, and by reason of the process whereby intelligence has arisen, we are likely everywhere to meet with apparent results of creative forethought ; and that thus in the evolution of intelligence itself these phenomena find their only satisfactory explanation.

In the chapter on the Evolution of Mind it was shown that the intelligence of any man consists partly of inner relations adjusted from moment to moment in conformity with the outer relations present in his own environment, and partly of organized and integrated inner relations bequeathed him by countless generations of ancestors, brute and human, and adjusted to the outer relations constantly presented in innumerable ancestral environments. Throughout all time, therefore, since intelligence first appeared upon the earth, the world of conceptions has been maintained in more or less complete

correspondence with the world of phenomena. Just as in the mental evolution of each individual there is preserved a certain degree of harmony with the mental evolution of contemporary and surrounding individuals, so the total evolution of intelligence has kept pace more or less evenly with the changes of the environment with which it has interacted. Sense after sense has assumed distinct existence in response to stimuli from without. One set of experiences after another has been coördinated in harmony with combinations existing without. Emotion after emotion has been slowly generated in conformity with the necessities entailed by outward circumstances. And thus the contemplating mind and the world of phenomena contemplated are, if I may so express it, tuned in mysterious unison.

Let us now inquire into the bearing of this fact upon the origin and apparent justification of the teleological theory. We have seen that man has from the earliest times been wont to project ideally his personality into the external world, assimilating the forces of physical nature to the forces displayed in his own volitions, and with unrestrained fancy multiplying likenesses of his own intelligence as means whereby to render comprehensible the agencies ever at work around him. Stronger in the ages of primeval fetishism than at any subsequent time,

this aboriginal tendency is nevertheless not yet quite fully overcome. Even as in the crying of an infant at sight of a stranger may be seen still feebly surviving the traces of feelings organized in the race at a time when the strange meant the dangerous, so likewise may we detect evanescent symptoms of a fetishistic style of reasoning in many highly subtilized ontological theories now in vogue; of which the volitional theory of causation, above dealt with, is a notable example. This archaic mode of reasoning, now become exceptional, was once universal. Now applied only to the most abstruse problems, it was at first equally employed in the solution of the simplest. Storm and sunshine, as well as defeat and victory, were regarded as the manifestations of superhuman volition and the achievements of superhuman intelligence. But scientific generalization, steadily arranging in correlated groups phenomena which had hitherto seemed isolated and lawless, was followed by the generalization of presiding divinities. And this went on until, in comparatively modern times, the habit of viewing nature as an organic whole has resulted in monotheism. As the most prominent result of this generalizing process we have seen slowly going on an elimination, from the objects of men's worship, of the less noble qualities originally ascribed to them. One by one the grosser sen-

sual passions, the emotions least worthy of reverence, and intellectual shortcomings, such as the liability to make mistakes and to be overreached, have been omitted from the conception of Deity. And the culmination of this purifying process is to be seen in the Deity of the modern metaphysician, which is little more than an abstract embodiment of reason and volition. But in spite of all this progressive change in the form of the conception, its substance still remains the same. It is still the human personality, however refined and etherealized, which is appealed to alike as the source and as the explanation of all phenomena. It is the primitive fetishistic habit of thought, however modified by conflict with scientific habits, which furtively leads us to regard volition as supplying the nexus between cause and effect, and to interpret the harmonious correspondences in nature as results of creative contrivance and indications of creative purpose.

Such being the origin of the teleological hypothesis, its apparent warrant is to be sought in the facts above recounted with respect to the evolution of intelligence. It is the complex and organized correspondence of the mind with its environment, which seems to furnish inductive justification to the thinker who is predisposed to see in nature the workings of a mind like his own. Arranging and combining various experi-

ences received from without, adjusting new inner relations to outer relations established from time immemorial, man reacts upon the environment, and calls into being new aggregations of matter, new channels of motion, new reservoirs of energy. He does not perceive and reflect only — he also contrives and invents. As often as he builds an engine, launches a ship, paints a picture, moulds a statue, or composes a symphony, he creates in the environment new relations tallying with those present within himself. And then, by a natural but deceptive analogy, he infers that what has taken place in the tiny portion of the universe which owns himself as its designer must also have taken place throughout the whole. All the relations externally existing he interprets as consequent upon primordial relations shaped in a mind similar to his own. By a subtle realism he projects the idea of himself out upon the field of phenomena, and deals with it henceforth as an objective reality. Human intelligence made the watch, therefore superhuman intelligence made the flower. Human volitions bring to pass wars and revolutions, divine volitions therefore cause famine and pestilence. So when, in the pervading unity which amid endless variety of detail binds into a synthetic whole the classes and genera of the organic world, an earnest and reverent thinker like Agassiz beholds the work of omnipresent

thought, he is but unawares contemplating his own personality reflected before him, and mistaking, Narcissus-like, a mirrored image for a substantial object of adoration. Thus is explained, even while it is refuted, the famous argument of the watch, with all its numerous kindred. In the anthropomorphic hypothesis, the bearings of the inner and the outer worlds are exactly reversed. It is not the intelligence which has made the environment, but it is the environment which has moulded the intelligence. In the mint of nature, the coin Mind has been stamped; and theology, perceiving the likeness of the die to its impression, has unwittingly inverted the causal relation of the two, making Mind, archetypal and self-existent, to be the die.

Therefore, to cite the language employed with slightly different but kindred intent by Mr. Barratt, "we protest against the reversal of the true order. . . . We must not fall down and worship as the source of our life and virtue the image which our own minds have set up. Why is such idolatry any better than that of the old wood and stone? If we worship the creations of our minds, why not also those of our hands? The one is indeed a more refined self-adoration than the other; but the radical error remains the same in both. The old idolators were wrong, not because they worshipped themselves, but

because they worshipped their creation as if it were their creator; and how can any [anthropomorphic theory] escape the same condemnation?"[1]

The origin of the teleological hypothesis is thus pointed out, and its plausibility accounted for. On the one hand, the primitive tendency in man to interpret nature anthropomorphically, and his proneness to lend to his own ideas objective embodiment, are facts admitting no dispute. All history teems with evidences of their widespread and deep-rooted influence. Has not fetishism been at one time the universal theology, and realism at another time the dominant philosophy? On the other hand, it is a corollary from the fundamental laws of life that psychical development has followed the course and been determined by the conditions above described. The view here defended may thus far claim at least equal weight with those which maintain the validity of the teleological hypothesis. But we have next to consider a class of phenomena, in the explanation of which that hypothesis appears at a signal disadvantage.

The perfect adjustment of inner to outer relations is that which constitutes perfect life. Were no chemical or mechanical relations to arise without the organism, too sudden, too intricate, or too unusual to be met by internal

[1] *Physical Ethics*, p. 225.

adaptations, death from disease and accident would no longer occur. Were there no concurrence of phenomena defying interpretation and refusing to be classified, there would be perfect knowledge. Were no desires awakened, save such as might be legitimately gratified by the requisite actions, there would be perfect happiness. That the ultimate state of humanity will be characterized by a relatively close approach to such an equilibrium between external requirements and internal resources is a belief which, however paradoxical it may seem to a superficial observer, is justified by all that we know of history and of biology. It is with reason that the modern mind sees its Golden Age in the distant future, as the ancient mind saw it in the forgotten past. But however bright and glorious may be the destination of mankind, its onward progress is marked by irksome toil and bitter sorrow. Though like the crusading children, in Arnold's beautiful simile, we may cry from time to time, "Jerusalem is reached!" it is only to be rudely awakened from our delusion — to realize that the goal is yet far off, and that many a weary league must be traversed before we can attain it. Meanwhile, grinding misery is the lot of many, regret and disappointment the portion of all. The life of the wisest man is chiefly made up of lost opportunities, defeated hopes, half-finished projects, and frequent fail-

ure in the ever-renewed strife between good and evil inclinations. So penetrated are the noblest careers by the leaven of selfish folly, that the conscientious biographer is too often constrained to adopt the tone of apology, mingling condemnation with approval. Side by side with deeds of heroism and sympathetic devotion, history is ever recording deeds of violence and selfish oppression. Undisciplined and conflicting desires are continually coming to fruition in hateful and iniquitous actions. The perennial recurrence of war and persecution, the obstinate vitality of such ugly things as despotism, superstition, fraud, robbery, treachery, and bigotry, show how chaotic as yet is the distribution of moral forces. While the prevalence, here and there, of ignorance and poverty, disease and famine, shows how imperfect as yet is our power to adapt ourselves to the changes going on around us.

That this state of things is temporarily necessitated by the physical constitution of the universe and by the process of evolution itself, may readily be granted.[1] The physical ills with

[1] In treating of the special creation hypothesis (*Principles of Biology*, Part III.) Mr. Spencer calls attention to the numerous cases in which the higher life is sacrificed, without compensation, to the lower, as for example in the case of parasites. This is a formidable objection, not only to the doctrine of special creations, but to anthropomorphic theism in

which humanity is afflicted are undoubtedly consequent upon the very movement of progress which is bearing it onward toward relative perfection of life, and moral evils likewise are the indispensable concomitants of its slow transition from the primeval state of savage isolation to the ultimate state of civilized interdependence. They are not obstacles to any scientific theory of evolution, nor do they provide an excuse for gloomy cynicism, but should rather be viewed with quiet resignation, relieved by philosophic hopefulness, and enlightened endeavours to ameliorate them. But though crime and suffering may indeed be destined eventually to disappear, their prevalence throughout the recorded past has none the less been ever the stumbling-block and opprobrium of all anthropomorphic theories of the universe. Just so far as the correspondence between the organism and its environment is complete does the teleological hypothesis find apparent confirmation. Just so far as the correspondence is incomplete does it meet with patent contradiction. If harmony and fitness are to be cited as proofs of beneficent design, then discord and unfitness must equally be kept in view as evi-

general. But for my present purpose it is quite enough to point out that the constitution of the world is such that even the genesis of higher life involves an enormous infliction of misery upon sentient creatures.

dences of less admirable contrivance. A scheme which permits thousands of generations to live and die in wretchedness cannot, merely by providing for the well-being of later ages, be absolved from the alternative charge of awkwardness or malevolence. If there exist a personal Creator of the universe who is infinitely intelligent and powerful, he cannot be infinitely good: if, on the other hand, he be infinite in goodness, then he must be lamentably finite in power or intelligence.[1] By this two-edged difficulty, Theology has ever been foiled. Vainly striving to elude the dilemma, she has at times sought refuge in optimism; alleging the beneficent results of suffering and the evanescent character of evil, as if to prove that suffering and evil do not really exist. Usually, however, she has taken the opposite course, postulating distinct supernatural sources for the evil and the good.[2]

[1] [One may contrast with this passage the more hopeful view of the possibility of a theodicy in the paper "The Mystery of Evil," in *Through Nature to God*.]

[2] "Οὐκ ἄρα πάντων γε αἴτιον τὸ ἀγαθὸν, ἀλλὰ τῶν μὲν εὖ ἐχόντων αἴτιον, τῶν δὲ κακῶν ἀναίτιον. Οὐδ' ἄρα ὁ Θεὸς, ἐπειδὴ ἀγαθὸς, πάντων ἂν εἴη αἴτιος, ὡς οἱ πολλοὶ λέγουσιν, ἀλλ' ὀλίγων μὲν τοῖς ἀνθρώποις αἴτιος, πολλῶν δὲ ἀναίτιος· πολὺ γὰρ ἐλάττω τἀγαθὰ τῶν κακῶν ἡμῖν· καὶ τῶν μὲν ἀγαθῶν οὐδένα ἄλλον αἰτιατέον, τῶν δὲ κακῶν ἄλλ' ἄττα δεῖ ζητεῖν τὰ αἴτια, ἀλλ' οὐ τον Θεόν." Plato, *Republic*, ii. 18 (Bekker). He goes on to refute the Homeric conception of the two jars, *Iliad*, xxiv. 660. See also Aristotle, *Metaphysica*, A. p. 984, b. 17; and compare the views of James Mill, in J. S.

From the Jötuns and Vritras of early Aryan mythology down to the multiform Manichæism of later times may be seen the innumerable vestiges of her fruitless attempts to reconcile the fact of the existence of evil with the hypothesis of the infinite power and benevolence of a personal Deity.

It is not for the theologian to seek to stifle such objections by telling us that, in raising them, we are blasphemously judging of the character of the Deity by human standards.[1] Nor is it for him to silence us by pointing to the

Mill's *Autobiography*, p. 40. For those who may wish to revive the Manichæan doctrine, an excellent point of departure has been afforded by Mr. Martineau, in his suggestion that the primary qualities of matter constitute a "datum objective to God," who, "in shaping the orbits out of immensity, and determining seasons out of eternity, *could but follow* the laws of curvature, measure, and proportion." *Essays, Philosophical and Theological*, pp. 163, 164. In this way Mr. Martineau preserves the quasi-human character of God in the only way in which (as I maintain) it can be preserved, — namely, by sacrificing his Omnipotence. In seeking to escape from Mr. Spencer's doctrine of the Unknowable, Mr. Martineau succeeds only in positing, in his "objective datum," an ulterior Unknowable, by which God's power is limited, and which *ex hypothesi* is not divine. This brings us directly back to Ormuzd and Ahriman. See Mr. Spencer's remarks, *Fortnightly Review*, December, 1873; vol. xiv. N.S. pp. 726–728.

[1] [On the sentence which here follows, and Fiske's later use of it, see § 34 of Introduction.]

wondrous process of evolution as itself the working out of a mighty Teleology of which our finite understandings can fathom but the scantiest rudiments.[1] As we shall see in the fifth chapter, the process of evolution, when reverently treated with the aid of such scientific resources as we possess, and when disencumbered of anthropomorphic hypotheses, leads us in the way of no such fearful dilemma as the one by which we are now encountered. It is theology alone which drives us to the brink of this fathomless abyss, by insisting upon the representation of the Deity as a person endowed with anthropomorphic attributes. If goodness and intelligence are to be ascribed to the Deity, it must be the goodness and intelligence of which we have some rudimentary knowledge as manifested in humanity, — otherwise our hypothesis is resolved into unmeaning verbiage. "If," as Mr. Mill observes, "in ascribing goodness to God I do not mean what I mean by goodness; if I do not mean the goodness of which I have some knowledge, but an incomprehensible attribute of an incomprehensible substance, which for aught I know may be

[1] For by taking such ground as this, he would virtually abandon his anthropomorphic hypothesis, and concede all that is demanded by the Cosmist. For this conception of teleology implied in the process of evolution, see Huxley, *Critiques and Addresses*, p. 306.

a totally different quality from that which I love and venerate — what do I mean by calling it goodness? and what reason have I for venerating it? To say that God's goodness may be different in kind from man's goodness, what is it but saying, with a slight change of phraseology, that God may possibly not be good?" With Mr. Mill, therefore, "I will call no Being good, who is not what I mean when I apply that epithet to my fellow creatures."[1] And going a step farther, I will add that it is impossible to call that Being good, who, existing prior to the phenomenal universe, and creating it out of the plenitude of infinite power and foreknowledge, endowed it with such properties that its material and moral development must inevitably be attended by the misery of untold millions of sentient creatures for whose existence their Creator is ultimately alone responsible. *In short, there can be no hypothesis of a "moral government" of the world, which does not implicitly assert an immoral government.* As soon as we seek to go beyond the process of evolution disclosed by science, and posit an external Agency which is in the slightest degree anthropomorphic, we are obliged either to supplement and limit this Agency by a second one

[1] [Mill's statement occurs in his famous reply to Mansel, in Mill's *Examination of the Philosophy of Sir William Hamilton*, chapter vii.]

that is diabolic, or else to include elements of diabolism in the character of the first Agency itself. And in the latter case the blasphemy — if we choose to call it so — lies at the door of those who, by urging upon us their anthropomorphic hypothesis, oblige us to judge the character of the Deity by human standards ; and not at the door of those who simply reveal the true character of that anthropomorphic hypothesis by setting forth its hidden implications.

Thus from every point of view the doctrine of a quasi-human God appears equally unsatisfactory to the scientific thinker. It rests upon unsupported theories of causation, upon a mistaken conception of law, and upon a teleological hypothesis whose origin renders it suspicious, and whose evidence fails it in the hour of need. The inductive proof alleged in its support is founded upon the correspondence between the organism and the environment, and where the correspondence fails, just there the doctrine is left helpless. The Doctrine of Evolution thus not only accounts for the origin and apparent justification of the anthropomorphic theory, but also reveals its limitations. And when thus closely scrutinized, the hypothesis appears as imperfect morally as it is intellectually. It is shown to be as incompatible with the truest religion as it is with the truest science. Instead of enlightening, it only mysti-

fies us; and, so far from consoling, it tends to drive us to cynical despair.

In spite of all the care observed in the wording of the foregoing argument — a care directed toward the bringing out of my entire thought, and not toward the concealing of any portion of it — the views here maintained will doubtless by many be pronounced "covertly atheistical." It must be reserved for the next three chapters to demonstrate that they are precisely the reverse, and that the intelligent acceptance of them must leave us in an attitude toward God more reverential than that which is assumed by those who still cling to the anthropomorphic hypothesis. At present we must be content with noting that our choice is no longer between an intelligent Deity and none at all: it lies between a limited Deity and one that is without limit. For, as the foregoing discussion has plainly shown, and as must appear from every similar discussion of the subject in terms of the Doctrine of Evolution, an anthropomorphic God cannot be conceived as an infinite God. *Personality* and *Infinity* are terms expressive of ideas which are mutually incompatible. The pseud-idea "Infinite Person" is neither more nor less unthinkable than the pseud-idea "Circular Triangle." As Spinoza somewhere says, *Determinatio negatio est*,[1] — to define God is to

[1] [This famous assertion occurs in Letter No. 50 of Spi-

deny Him; and such being the case, what can be more irrational than to insist upon thought and volition, phenomena only known to exist within quite narrow limitations, as the very nature and essence of the infinite Deity? What theory of physical or moral phenomena, built upon such an inadequate basis, can be other than unsound and misleading? What wonder if it continually land us in awkward and conflicting conclusions, painful to us alike as inquiring and as religious beings? As Goethe has profoundly said, "Since the great Being whom we name the Deity manifests himself not only in man, but in a rich and powerful Nature, and in mighty world events, a representation of him, framed from human qualities, cannot of course be adequate, and the thoughtful observer will soon come to imperfections and contradictions, which will drive him to doubt — nay, even to despair — unless he be either little enough to let himself be soothed by an artful evasion, or great enough to rise to a higher point of view."[1] To those whom the habits of thought which science nurtures have led to believe in the existence of an all-pervading and all-sustaining Power, eternally and everywhere manifested in the phenomenal activity of the universe, alike the cause

noza's correspondence (Van Vloten and Lands Edition, vol. ii. p. 185).]

[1] Eckermann, vol. ii. p. 357.

of all and the inscrutable essence of all, without whom the world would be as the shadow of a vision, and thought itself would vanish, — to these the conception of a presiding anthropomorphic Will is a gross and painful conception. Even were it the highest phenomenal conception which can be framed, it would still be inadequate to represent the Ineffable Reality. But we do not and cannot know even that it is the highest. Hegel was rash with all the metaphysician's rashness when he said that Humanity is the most perfect type of existence in the universe. Our knowledge of the Cosmos has been aptly compared by Carlyle to the knowledge which a minnow in its native creek has of the outlying ocean. Of the innumerable combinations of matter and incarnations of force which are going on within the bounds of space, we know, save a few of the simplest, those only which are confined to the surface of our little planet. And to assert that among them all there may not be forms of existence as far transcending humanity as humanity itself transcends the crystal or the seaweed, is certainly the height of unwarrantable assumption.

> "Think you this mould of hopes and fears
> Could find no statelier than his peers
> In yonder hundred million spheres?"

Until our knowledge becomes coextensive with the entire world of phenomena, questions like

these must remain unanswered. Meanwhile we may rest assured that, could we solve them all, the state of the case would not be essentially altered. Our conception might be relatively far loftier, but from the absolute point of view it would be equally beneath the Reality. We are therefore forced to conclude that the process of deanthropomorphization which has from the first characterized the history of philosophic development must still continue to go on; until the Intelligent Will postulated by the modern theologian shall have shared the fate of the earlier and still more imperfect symbols whereby finite man has vainly tried to realize that which must ever transcend his powers of conception.

CHAPTER III

COSMIC THEISM[1]

THE conclusions reached in the foregoing chapter were purely negative, and would therefore be very unsatisfactory if we were obliged to rest in them as final. Upon the religious side of philosophy as well as upon its scientific side, the mind needs some fundamental theorem with reference to which it may occupy a positive attitude. According to the theory of life and intelligence expounded in previous chapters, mere scepticism can discharge but a provisional and temporary function. To the frivolously minded the mere negation of belief may be in no wise distressing; but to the earnest inquirer the state of scepticism is accompanied by pain, which, here as elsewhere, is only subserving its proper function when it stimulates him to renewed search after a positive result. In the present transcendental inquiry it may indeed at first sight seem impossible to arrive at any positive result whatever, without ignoring the relativity of knowledge and proving recreant to the rigorous requirements of the

[1] [See Introduction, § 30.]

objective method. Nevertheless, as was hinted at the close of the preceding chapter, this is not the case. Although the construction of a theology, or science of Deity, is a task which exceeds the powers of human intelligence, there is nevertheless one supremely important theorem in which science and religion find their permanent reconciliation, and by the assertion of which the mind is brought into a positive attitude of faith with reference to the Inscrutable Power manifested in the universe. The outcome of the present argument is not Atheism or Positivism, but a phase of Theism which is higher and purer, because relatively truer, than the anthropomorphic phase defended by theologians.

This all-important theorem in which science and religion are reconciled is neither more nor less than the theorem which alone gives complete expression to the truth that all knowledge is relative. In the first chapter of this work it was elaborately proved that as soon as we attempt to frame any hypothesis whatever concerning the Absolute, or that which exists out of relation to our consciousness, we are instantly checkmated by alternative impossibilities of thought, and when we seek to learn why this is so, we are taught by a psychologic analysis that, from the very organization of our minds, and by reason of the very process by which intelli-

gence has been evolved, we can form no cognition into which there do not enter the elements of *likeness*, *difference*, and *relation*, — so that the Absolute, as presenting none of these elements, is utterly and forever unknowable. Translating this conclusion into more familiar language, we found it to mean, *first*, "that the Deity, in so far as absolute and infinite, is inscrutable by us, and that every hypothesis of ours concerning its nature and attributes can serve only to illustrate our mental impotence," — and, *secondly*, "that the Universe in itself is likewise inscrutable; that the vast synthesis of forces without us, which in manifold contact with us is from infancy till the close of life continually arousing us to perceptive activity, can never be known by us as it exists objectively, but only as it affects our consciousness." [1]

These are the closely allied conclusions which were reached in our opening discussion. But since such abstruse theorems need to be taken one by one into the mind, and allowed one after the other to dwell there for a while, in order to be duly comprehended, it did not then seem desirable to encumber the exposition with any reference to the third statement in which these two are made to unite; nor, indeed, would it have been possible to illustrate adequately this third statement until we had defined our position

[1] See above, vol. i. p. 21.

in relation to the questions of phenomenality, of causation and deanthropomorphization, of the persistence of force, and of the evolution of the phenomenal world. But now, having obtained definite conclusions upon these points, we are at last enabled to present the case as a whole. Having seen that in certain senses the Deity and the Cosmos are alike inscrutable, let us now see if there is any sense in which it may be legitimately said that the Unknowable contained in our first theorem is identical with the Unknowable contained in our second theorem.

Upon what grounds did we assert the unknowableness of Deity? We were driven to the conclusion that Deity is unknowable, because that which exists independently of intelligence and out of relation to it, which presents neither *likeness*, *difference*, nor *relation*, cannot be cognized. Now by precisely the same process, we were driven to the conclusion that the Cosmos is unknowable, only in so far as it is absolute. It is only as existing independently of our intelligence and out of relation to it, that we can predicate unknowableness of the Cosmos. As manifested to our intelligence, the Cosmos is the world of phenomena, — the realm of the knowable. We know stars and planets, we know the surface of our earth, we know life and mind in their various manifestations, individual and social. But as we have seen, this vast aggregate

of phenomena exists as such only in relation to our intelligence. Its *esse* is *percipi*. To this extent we have gone with Berkeley. But underlying this aggregate of phenomena, to whose extension we know no limit in space or time, we have found ourselves compelled to postulate an Absolute Reality, — a Something whose existence does not depend on the presence of a percipient mind, which existed before the genesis of intelligence, and would continue to exist though all intelligence were to vanish from the scene. Without making such a postulate, we concluded that it would be impossible to frame any theory whatever, either of subjective or of objective phenomena. Thus the theorem of the relativity of knowledge, when fully expressed, asserts that there exists a Something, of which all phenomena, as presented in consciousness, are manifestations, but concerning which we can know nothing save through its manifestations.

Let us now take a step further, and turning to the conclusions reached in the first chapter of Part II., let us inquire, *What is the Force of which we there asserted the persistence?* "It is not," says Mr. Spencer, "the force we are immediately conscious of in our own muscular efforts; for this does not persist. As soon as an outstretched limb is relaxed, the sense of tension disappears. True, we assert that in the stone thrown or in the weight lifted is exhib-

ited the effect of this muscular tension; and that the force which has ceased to be present in our consciousness exists elsewhere. But it does not exist elsewhere under any form cognizable by us. It was proved that though, on raising an object from the ground, we are obliged to think of its downward pull as equal and opposite to our upward pull; and though it is impossible to represent these pulls as equal without representing them as like in kind; yet, since their likeness in kind would imply in the object a sensation of muscular tension, which cannot be ascribed to it, we are compelled to admit that force as it exists out of our consciousness is not force as we know it. Hence the force of which we assert persistence is that Absolute Force of which we are indefinitely conscious as the necessary correlate of the force we know. Thus by the persistence of force we really mean the persistence of some Power which transcends our knowledge and conception. The manifestations, as occurring either in ourselves or outside of us, do not persist — but that which persists is the Unknown Cause of those manifestations. In other words, asserting the persistence of force is but another mode of asserting an Unconditioned Reality, without beginning or end." Thus as "a subjective analysis proved that while, by the very conditions of thought, we are prevented from knowing anything be-

yond relative being; yet that, by these very same conditions of thought, an indefinite consciousness of Absolute Being is necessitated, — so here, by objective analysis, we similarly find that the axiomatic truths of physical science unavoidably postulate Absolute Being as their common basis." [1]

Combining, therefore, these mutually harmonious results, and stating the theorem of the persistence of force in terms of the theorem of the relativity of knowledge, we obtain the following formula: *There exists a* POWER, *to which no limit in time or space is conceivable, of which all phenomena, as presented in consciousness, are manifestations, but which we can know only through these manifestations.* Here is a formula legitimately obtained by the employment of scientific methods, as the last result of a subjective analysis on the one hand, and of an objective analysis on the other hand. Yet this formula, which presents itself as the final outcome of a purely scientific inquiry, expresses also the fundamental truth of Theism, — the truth by which religious feeling is justified.[2] The existence of God — the supreme truth

[1] *First Principles*, pp. 189, 190.

[2] [Contrast "The Everlasting Reality of Religion," chapter iv.: "Take away from our notion of God the human element, and the theism instantly vanishes; it ceases to be a notion of God."]

asserted alike by Christianity and by inferior historic religions — is asserted with equal emphasis by that Cosmic Philosophy which seeks its data in science alone. Thus, as Mr. Lewes long ago observed, the remark of Comte, that the heavens declare no other glory than the glory of Hipparchos and Newton, and such others as have aided in detecting the order of sequence among celestial phenomena, seems as irrational to the scientific inquirer as it seems impious to the religious mind. The Cosmist may assert, as consistently as the Anthropomorphist, that "the undevout astronomer is mad." Though science must destroy mythology, it can never destroy religion; and to the astronomer of the future, as well as to the Psalmist of old, the heavens will declare the glory of God.

Before proceeding further to expound this theorem, in which science and religion find their reconciliation, it is desirable to turn aside for a moment and contrast the views here expounded with the views maintained by Comte concerning the true object of the religious feeling. We shall thus the better elucidate our own position, while once more pointing out the world-wide difference between our philosophy and Positivism. Let us examine the conception of Deity formed by the thinker to whom the heavens manifested no other glory than that of Hipparchos and Newton and their compeers.

Comte recognized, though vaguely, the truth that while the human race in the course of its philosophic evolution must outgrow theology, it can never outgrow religion. He justly maintained that, while the conception of a presiding quasi-human Will must eventually be discarded as an inadequate subjective symbol, there will nevertheless remain to the last the powerful sentiment of devotion which has hitherto attached itself to that anthropomorphic conception, but must finally attach itself to some other conception. Throughout future time, while science is supreme, no less than in that past time when mythology was supreme, there must be a religion, and this religion must have an object. So far the position taken by Comte appears to be defensible enough. But now when we come to consider the object of the religious sentiment in Comte's scheme, we must pronounce his position not only irreconcilable with sound philosophy, but hopelessly retrograde as compared even with the current anthropomorphism. Seeing only the negative side of the theorem of relativity, and thus failing explicitly to recognize the existence of that Absolute Power of which the web of phenomena is but the visible garment, he was obliged to search for his Deity in the realm of the finite and the knowable. Working under these conditions, the result at which he finally arrived appears to

have been legitimately evolved from the conception of the aims and scope of philosophy which he had framed in early life, at the very outset of his speculations. The thinker who from the beginning consistently occupied the anthropocentric point of view, who regarded philosophy, not as a unified theory of the Cosmos, but as a unified theory of Man, who depreciated the development theory and the study of sidereal astronomy as interfering with his anthropocentric notions, and to whom the starry heavens declared no glory save that of finite men, arrived ultimately at the deification of Humanity. Comte "refers the obligations of duty, as well as all sentiments of devotion, to a concrete object, at once ideal and real — the Human Race, conceived as a continuous whole, including the past, the present, and the future." "It may not be consonant to usage," observes Mr. Mill, "to call this a religion; but the term, so applied, has a meaning, and one which is not adequately expressed by any other word. Candid persons of all creeds may be willing to admit that if a person has an ideal object, his attachment and sense of duty towards which are able to control and discipline all his other sentiments and propensities, and prescribe to him a rule of life, that person has a religion. . . . Many indeed may be unable to believe that this object is capable of gathering around it feel-

ings sufficiently strong: but this is exactly the point on which a doubt can hardly remain in an intelligent reader of Comte; and we join with him in contemning, as equally irrational and mean, the conception of human nature as incapable of giving its love and devoting its existence to any object which cannot afford in exchange an eternity of personal enjoyment." [1] With the general tenour of this passage I heartily agree. I have no sympathy with those critics who maintain that the idea of Humanity is an unworthy idea, incapable of calling forth to a high degree our sentiments of devotion and reverence. No doubt, as the Comtists tell us, the majestic grandeur of which that idea is susceptible can be realized only after long and profound contemplation. And we may perhaps admit, with Mr. Mill, that "ascending into the unknown recesses of the past, embracing the manifold present, and descending into the indefinite and unforeseeable future, forming a collective Existence without assignable beginning or end, it appeals to that feeling of the Infinite which is deeply rooted in human nature." We may still further admit that all morality may be summed up in the disinterested service of the human race, — such being, as already shown (Part II. chapter xxii.), the fundamental principle of the ethical philosophy which is based on

[1] Mill, *Auguste Comte and Positivism*, p 122.

the Doctrine of Evolution. And it is, moreover, easy to sympathize with the feeling which led Comte formally to consecrate the memories of the illustrious dead, whose labours have made us what we are; that "communion of saints, unseen yet not unreal," as Carlyle nobly expresses it, "whose heroic sufferings rise up melodiously together unto Heaven, out of all times and out of all lands, as a sacred *Miserere*; their heroic actions also, as a boundless everlasting Psalm of triumph." This intense feeling of the community of the human race, this "enthusiasm of Humanity," as the author of "Ecce Homo" calls it, forms a very considerable part of Christianity when stripped of its mythology, and is one of the characteristics which chiefly serve to difference the world religion of Jesus and Paul from the ethnic religions of antiquity.

Nevertheless, after freely acknowledging all these points of excellence in the Comtean conception, it must still be maintained that Comte's assignment of Humanity as the direct object of religious worship was a retrograde step, when viewed in contrast, not only with the cosmic conception of Deity already clearly foreshadowed by Goethe, but even with the anthropomorphic conception as held by contemporary liberal theologians. A fatal criticism — omitted, and apparently overlooked by Mr. Mill, in his account of the Comtean religion — remains to

be made upon it. I do not refer to the difficulty of ascribing godhood to a product of evolution, neither is it necessary to insist upon the marvellous shading-off of collective apehood into Deity which must puzzle the Comtist who stops to confront his theory with the conclusions now virtually established concerning man's origin; though beneath the cavil and sarcasm which cannot be kept from showing itself upon the surface of such objections, there lies just scientific ground of complaint against the Comtean hypothesis. The criticism to which I refer is one the force of which must be acknowledged even by those who have not yet learned to estimate the resistless weight of the evidence by which the development theory is supported. However grand Humanity may be as an object of contemplation, it is still finite, concrete, and knowable. It has had a beginning; in all probability it is destined to have an end. We can no longer, since the Copernican revolution, regard it as the chief and central phenomenon of the universe.[1] We know it but as a local assemblage of concrete phenomena, manifested on the surface of a planet that is itself a lesser member of a single group among innu-

[1] [Contrast the reinstatement of human evolution in a central position in our whole conception of evolution in Fiske's later works. See Introduction, III., for the evolution of Fiske's later views.]

merable groups of worlds. It is no less significant than amusing that toward the last Comte would fain have banished from astronomy not only the study of the stars, but even the study of those planets in our own system which do not considerably perturb the motions of the earth. He wished to exclude from science everything which does not conspicuously affect human interests, and everything which by its magnitude dwarfs the conception of Humanity. Far sounder would his views have been had he now and then permitted his thoughts to range to the uttermost imaginable limits of the sidereal universe, and brought himself duly to realize how by the comparison Humanity quite loses its apparent infinitude. Or had he more carefully analyzed the process of human thinking itself, the study of which he stigmatized as "metaphysical" and profitless, he might perhaps have seen that the world of phenomena speaks to us, everywhere and at all times, if we only choose to listen, of an Infinite and Unknowable Reality, whereas the conception of Humanity is but the conception of a Finite and Knowable Phenomenon. Here we touch the bottom of his error. This great Being, says the Comtist, this collective Humanity, is our supreme Being, — "the only one we can know, *therefore* the only one we can worship." On the other hand, the Cosmist asserts, what we know is

not what we worship ; what we know is matter of science ; it is only when science fails, and intelligence is baffled, and the Infinite confronts us, that we cease to analyze and begin to worship. What men have worshipped, from the earliest times, has been not the Known, but the Unknown. Even the primeval savage, who worshipped plants and animals, worshipped them only in so far as their modes of action were mysterious to him, — only in so far as they constituted a part of the weird uninterpreted world by which he was surrounded. As soon as he had generalized the dynamic phenomena presented by the plant or the animal, that is, as soon as it became an object of knowledge, it ceased to be an object of worship. As soon as the grander phenomena of sunrise and sunset, storm and eclipse, had been partially generalized, they were no longer directly worshipped, but unseen agents were imagined as controlling the phenomena by their arbitrary volitions, and these agents, as being mysterious, were worshipped. So when polytheism began to give place to monotheism, the process was still the same. The visible and tangible world was regarded as the aggregate of things which might be understood ; but above and beneath all this was the mysterious aspect of things — the Dynamis, the Demiurgus, the Cause of all, the Ruler of all, — and this mighty Something was worshipped.

Though theology has all along wrestled with the insoluble problems presented by this supreme Mystery, and, by insisting on divers tangible propositions concerning it, has implicitly asserted that it can be at least partially known; the fact remains that only by being unknown has it continued to be the object of the religious sentiment. Could the theologian have carried his point and constructed a "science of Deity;" could the divine nature have been all expressed in definite formulas, as we express the genesis of vegetation or the revolutions of the planets, worship would have disappeared altogether. Worship is ever the dark side of the shield, of which knowledge is the bright side. It is because science can never explain the universe, it is because the enlarging periphery of knowledge does but reveal from day to day a greater number of points at which we meet the unknowable lying beyond, that religion can never become obsolete. Though we have come to recognize the most refined symbols by which men have sought to render Deity intelligible as inadequate and misleading symbols; though we sacrifice the symbol of personality because personality implies limitation, and to speak of an infinite personality is to cheat one's self with a phrase that is empty of meaning, yet our recognition of Deity is only the more emphatic. Thus "the object of religious sentiment will ever continue

to be that which it has ever been." The God of the scientific philosopher is still, and must ever be, the God of the Christian, though freed from the illegitimate formulas by the aid of which theology has sought to render Deity comprehensible. What is this wondrous Dynamis which manifests itself to our consciousness in harmonious activity throughout the length and breadth and depth of the universe, which guides the stars for countless ages in paths that never err, and which animates the molecules of the dewdrop that gleams for a brief hour on the shaven lawn, — whose workings are so resistless that we have naught to do but reverently obey them, yet so infallible that we can place our unshaken trust in them, yesterday, to-day, and forever? When, summing up all activity in one most comprehensive epithet, we call it Force, we are but using a scientific symbol, expressing an affection of our consciousness, which is yet powerless to express the ineffable Reality. To us, therefore, as to the Israelite of old, the very name of Jehovah is that which is not to be spoken. Push our scientific research as far as we may, pursuing generalization until all phenomena, past, present, and future, are embraced within a single formula, we shall never fathom this ultimate mystery, we shall be no nearer the comprehension of this omnipresent Energy. Here science must ever reverently pause, ac-

knowledging the presence of the mystery of mysteries. Here religion must ever hold sway, reminding us that from birth until death we are dependent on a Power to whose eternal decrees we must submit, to whose dispensations we must resign ourselves, and upon whose constancy we may implicitly rely.[1]

Thus we begin to realize, more vividly than theology could have taught us to realize, the utter absurdity of atheism. Thus is exhibited the prodigious silliness of Lalande, who informed mankind that he had swept the heavens with his telescope and found no God there, — as if God were an optical phenomenon! Thus, too, we see the poverty of that anthropomorphism which represents the infinite Deity as acting through calculation and contrivance, just as finite intelligence acts under the limitations imposed by its environment. And thus, finally, we perceive the hopeless error of the Positivist, who would give us a finite knowable, like Humanity, for an object of religious contemplation. The reasoning which demonstrates the relativity of knowledge, demonstrates also the failure of all such attempts to bind up religion in scientific formulas.

The anthropomorphic theist, habitually

[1] [On the whole contrast between the point of view of the foregoing text and the later stages of Fiske's thought, see Introduction, III.]

thinking of God as surrounded and limited by an environment or "objective datum," will urge that the doctrine here expounded is neither more nor less than Pantheism, or the identification of God with the totality of existence. So plausible does this objection appear, at first sight, that those who urge it cannot fairly be accused either of dulness of apprehension or of a desire to misrepresent. Nevertheless it needs but to look sharply into the matter to see that the doctrine here expounded is utterly opposed to Pantheism. Though the word "pantheism" has been almost as undiscriminatingly bandied about among theological disputants as the word "atheism," it has still a well-defined metaphysical meaning which renders it inapplicable to a religious doctrine based upon the relativity of knowledge. In the pantheistic hypothesis the distinction between absolute and phenomenal existence is ignored, and the world of phenomena is practically identified with Deity. Of this method of treating the problem the final outcome is to be seen in the metaphysics of Hegel, in which the process of evolution, vaguely apprehended, is described absolutely as a process of change in the Deity, and in which God, as identified with the totality of phenomenal existence, is regarded as continually progressing from a state of comparative imperfection to a state of comparative perfection. Or, in other words

— to reduce the case to the shape in which it was presented in the first chapter of this work — the Universe, as identified with God, is regarded as self-evolved. Such a hypothesis, equally with that of the anthropomorphic theist, implicitly limits Deity with an "objective datum," and renders it finite; for, as Mr. Mansel has observed in another connection, "how can the Infinite become that which it was not from the first?" Obviously for the change an ulterior Cause is needed; and thus the pantheistic hypothesis resolves itself into the affirmation of a limited Knowable conditioned by an unlimited Unknowable, — but it is the former, and not the latter, which it deifies.

Hence to the query suggested at the beginning of this chapter, whether the Deity can be identified with the Cosmos, we must return a very different answer from that returned by the Pantheist. The "open secret," in so far as secret, is God, — in so far as open, is the World; but in thus regarding the ever-changing universe of phenomena as the multiform revelation of an Omnipresent Power, we can in no wise identify the Power with its manifestations. To do so would reduce the entire argument to nonsense. From first to last it has been implied that, while the universe is the manifestation of Deity, yet is Deity something more than the universe.

The doctrine which we have here expounded

is, therefore, neither more nor less than Theism, in its most consistent and unqualified form. It is quite true that the word "theism," as ordinarily employed, connotes the ascription of an anthropomorphic personality to the Deity. But in this connotation there has been nothing like fixedness or uniformity. On the other hand the term has become less and less anthropomorphic in its connotations, from age to age, and in the sense in which it is here employed the deanthropomorphizing process is but carried one step farther. There was a time when theism seemed to require that God should be invested with a quasi-human body, just as it now seems to require that God should be invested with quasi-human intelligence and volition. But for us to concede the justice of the latter restriction would be as unphilosophical as it would have been for the early monotheists to concede the justice of the former. Just as the early Christians persisted in calling themselves theists while asserting that God dwells in a temple not made with hands, so may the modern philosopher persist in calling himself a theist while rejecting the arguments by which Voltaire and Paley have sought to limit and localize the Deity. Following out the parallel, we might characterize the doctrine here expounded as the "higher theism," in contrast with the "lower theism" taught in the current doctrine. Or in conformity with the

nomenclature which has already done us such good service, we may still better characterize it as Cosmic Theism, in contrast with the Anthropomorphic Theism of those theologians who limit the Deity by an "objective datum."

This happy expression of Mr. Martineau's lays bare the anthropomorphic hypothesis to the very core, and when thoroughly considered, lets us into the secret of that superficial appearance of antagonism between Science and Religion which has disturbed so many theologians and misled so many scientific inquirers. Though as an act of lip homage anthropomorphism asserts the infinitude and omnipotence of God, yet in reality it limits and localizes him. Though it overtly acknowledges that "in Him we live and move and have our being," yet it tacitly belies this acknowledgment by the implication, which runs through all its reasonings, that God is a person localized in some unknown part of space, and that the universe is a "datum objective to God" in somewhat the same sense that a steam-engine is an "objective datum" to the engineer who works it. I do not say that such a conception would be avowed by any theologian: as thus overtly stated, it would no doubt be generally met with an emphatic disclaimer. Nevertheless this conception, whether avowed or disclaimed, lies at the bottom of all the arguments which theologians urge either against the

theory of evolution or against any other theory which extends what is called "the domain of natural law." Take away this conception, and not only do their specific arguments lose all significance, but their entire position becomes meaningless; there ceases to be any reason for their opposing instead of welcoming the new theory. For if "extending the domain of natural law" be equivalent to "extending our knowledge of Divine action," what objection can the theologian logically make to this? Manifestly his hostile attitude is wholly prescribed by his belief, whether tacit or avowed, that the sphere of natural law and the sphere of Divine action are two different spheres, so that whatever is added to the former is taken from the latter. It is assumed that the universe is a sort of lifeless machine, which under ordinary circumstances works along without immediate Divine superintendence, in accordance with what are called natural laws, very much as the steam-engine works when once set going, in accordance with the harmoniously coöperating properties of its material structure. Only by occasional interposition, it is assumed, does God manifest his existence, — by originating organic life, or creating new species out of dust or out of nothing, or by causing prodigies to be performed within historic times for the edification of gaping multitudes. So deep-seated is this assumption — so vitally

implicated is it with all the habits of thought which theology nurtures — that we sometimes hear it explicitly maintained that when natural law can be shown to be coextensive with the whole of nature, then our belief in God will *ipso facto* be extinguished.

Such a position is no doubt as irreligious as it is unscientific; but it is not difficult to see how it has come to be so commonly maintained. Not only is it often apparently justified by the unphilosophical language of scientific men — especially of those shallow writers known as "materialists" — who speak of "natural law" as if it were something different from "Divine action," but it is also the logical offspring of that primitive fetishism from which all our theology is descended. For as physical generalization began to diminish the sphere of action of the innumerable quasi-human agencies by which fetishism sought to account for natural phenomena, there could hardly fail to arise a belief in some sort of opposition between invariable law and quasi-human agency. On the one hand you have a set of facts that occur in fixed sequences, and so are not the result of anthropomorphic volition; on the other hand you have a set of facts that seem to occur according to no determinable order, and so are the result of anthropomorphic volition. The fetishistic thinker could not, of course, formulate the case in this abstract and

generalized way; but there can be no doubt that a crudely felt antithesis of the kind here indicated must have been nearly coeval with the beginnings of physical generalization. Now the gradual summing up and blending together of all the primeval quasi-human agencies into one grand quasi-human Agency could not at once do away with this antithesis. On the contrary, the antithesis would naturally remain as the generalized opposition between the realm of "invariable law" and the realm of "Divine originality." It would be superfluous to recount the various metaphysical shapes which this conception has assumed, in some of which Nature has even been personified as an intelligent and volitional agency, distinct from God, and working through law while God works through miracle. The result has been that, as scientific generalization has steadily extended the region of "natural law," the region which theology has assigned to "Divine action" has steadily diminished, until theological arguments have become insensibly pervaded by the curious assumption that the greater part of the universe is godless. For it is naïvely asked, if plants and animals have been naturally originated, if the world as a whole has been evolved and not created, and if human actions conform to law, what is there left for God to do?[1] If not formally repudiated,

[1] "Illos omnes Deum aut saltem Dei providentiam tollere

is he not thrust back into the past eternity, as an unknowable source of things, which is postulated for form's sake, but might as well, for all practical purposes, be omitted?

The reply is that the difficulty is one which theology has created for itself. It is not science, but theology, which has thrust back Divine action to some nameless point in the past eternity and left nothing for God to do in the present world. For the whole difficulty lies in the assumption of the material universe as a "datum objective to God," and in the consequent distinction between "Divine action" and "natural law," — a distinction for which science is in no wise responsible. The tendency of modern scientific inquiry, whether working in the region of psychology or in that of transcendental physics, is to abolish this distinction, and to regard "natural law" as merely a synonym of "Divine action." And since Berkeley's time the conception of the material universe as a "datum objective to God" is one which can

putant, qui res et miracula per causas naturales explicant aut intelligere student." Spinoza, *Tractatus Theologico-Politicus*, vol. vi. *Opera*, vol. iii. 86. "Οὐ γὰρ ἠνείχοντο τοὺς φυσικοὺς καὶ μετεωρολέσχας τότε καλουμένους, ὡς εἰς αἰτίας ἀλόγους καὶ δυνάμεις ἀπρονοήτους καὶ κατηναγκασμένα πάθη διατρίβοντας τὸ θεῖον." Plutarch, *Nikias*, cap. 23. The complaint, it will be seen, is the same in modern that it was in ancient times. Compare Plutarch, *Perikles*, cap. 6; Cicero, *Tusc. Disp.* i. 13, *Opera*, ed. Nobbe, tom. viii. p. 299.

hardly be maintained on scientific grounds. It is scientific inquiry, working quite independently of theology, which has led us to the conclusion that all the dynamic phenomena of Nature constitute but the multiform revelation of an Omnipresent Power that is not identifiable with Nature. And in this conclusion there is no room left for the difficulty which baffles contemporary theology. The scientific inquirer may retort upon the theologian: Once really adopt the conception of an ever-present God, without whom not a sparrow falls to the ground, and it becomes self-evident that the law of gravitation is but an expression of a particular mode of Divine action. And what is thus true of one law is true of all laws. The Anthropomorphist is naturally alarmed by the continual detection of new uniformities, and the discovery of order where before there seemed to be disorder; because his conception of Divine action has been historically derived from the superficial contrast between the seemingly irregular action of will and the more obviously regular action of less complex phenomena. The Cosmist, on the other hand, in whose mind Divine action is identified with orderly action, and to whom a really irregular phenomenon would seem like the manifestation of some order-hating Ahriman, foresees in every possible extension of knowledge a fresh confirmation of his faith in God, and thus re-

cognizes no antagonism between our duty as inquirers and our duty as worshippers. He will admit no such inherent and incurable viciousness in the constitution of things as is postulated by the anthropomorphic hypothesis. To him no part of the world is godless. He does not rest content with the conception of "an absentee God, sitting idle, ever since the first Sabbath, at the outside of his universe, and 'seeing it go;'" for he has learned, with Carlyle, "that this fair universe, were it in the meanest province thereof, is in very deed the star-domed City of God; that through every star, through every grass blade, and most through every living soul, the glory of a present God still beams."[1]

From the anthropomorphic point of view it will quite naturally be urged in objection, that this apparently desirable result is reached through the degradation of Deity from an "intelligent personality" into a "blind force," and is therefore in reality an undesirable and perhaps even quasi atheistic result. To the theologian the stripping off the anthropomorphic vestments with which men have sought to render the Infinite representable in imagination, always means the leaving of nothing but "blind force" as a residuum. Trained upon the subjective method, and habitually applying to all propo-

[1] *Sartor Resartus*, Book II. chap. vii.; Book III. chap. viii.

sitions the test of metaphysical congruity only, he naturally regards the possibilities of human thought as fairly representative of the possibilities of existence. Accordingly since human intelligence is the highest mode of Being which we know, — being in the nature of things the highest mode, since it is the mode in which we ourselves exist, and which we must therefore necessarily employ as a norm by which to estimate all other modes, — the theologian infers that any higher mode of Being is not only inconceivable but impossible. And so, when a vast extension of our knowledge of nature shows (or seems to show) that the workings of quasi-human intelligence form but an inadequate and misleading symbol of the workings of Divine Power, it naturally seems to the theologian that we are giving up an "intelligent personality" for a "blind force."

Here, however, as before, the difficulty is one which theology has created for itself. It is not science, but theology, which conjures up a host of phantom terrors by the gratuitous use of the question-begging epithet "blind force." The use of this, and of the kindred epithet "brute matter," implies that matter and force are real existences, — independent "data objective to" consciousness. Such a view, however, as already shown, cannot be maintained. To the scientific inquirer, the terms "mat-

ter" and "force" are mere symbols which stand *tant bien que mal* for certain generalized modes of divine manifestation: they are no more real existences than the x and y of the algebraist are real existences. The question as to identifying Deity with Force is, therefore, simply ruled out. The question which really presents itself is quite different. Theologically phrased, the question is whether the creature is to be taken as a measure of the Creator. Scientifically phrased, the question is whether the highest form of Being as yet suggested to one petty race of creatures by its ephemeral experience of what is going on in one tiny corner of the universe is necessarily to be taken as the equivalent of that absolutely highest form of Being in which all the possibilities of existence are alike comprehended. It is the same question which confronted us in our opening chapter, and which returned to confront us in sundry other chapters of our Prolegomena. Already we have more than once answered it, in a general way, by showing that "the possibilities of thought are not coextensive with the possibilities of things." We have now to give it a more special answer, by inquiring into the possibility of a mode of existence not limited by the conditions which limit conscious existence within the narrow domain of our terrestrial experience. In other words, we have to

inquire into the relations between Matter and Spirit; and the inquiry, besides throwing light on questions which must have arisen in the course of our exposition of the evolution of life and intelligence, will also furnish us with the means for emphasizing the theistic conclusions obtained in the present chapter.

CHAPTER IV

MATTER AND SPIRIT[1]

IT is the usual lot of scientific writers who maintain theories which have not yet become popular with the theological world, to be accused of holding opinions which they not only do not hold, but against which they have perhaps, on every fitting occasion, publicly and emphatically protested. Partly, no doubt, such misrepresentations arise from that carelessness (to call it by no worse name) which too often characterizes the statements of persons who have come to believe that the interests of sacred truth have been committed to them for safe keeping. Whether the truth in question derives its sacredness from time-hallowed tradition or what are called the "higher instincts of our nature," whether its self-appointed guardians are conservative theologians or radical iconoclasts, extreme devotion to its

[1] [See Introduction, § 31. As containing the principal starting point of the process by which Fiske's later thought diverged from Spencer's (despite all Fiske's desire to find that Spencer when properly interpreted is in agreement with himself as to these matters), this chapter is especially noteworthy.]

interests is liable to be accompanied by a lofty disregard for that accuracy of statement which to the scientific inquirer seems so indispensable. It appears to be tacitly assumed that the interests of Truth in the abstract can be rightly subserved only by the sacrifice of divers humble concrete truths. Abundant evidence of this is to be found in the tracts and speeches of "teetotalers," "labour reformers," "friends of the People," and other sentimentalists. As regards theologians, a great deal is to be said in behalf of their intolerance of opinions which they honestly believe to be fraught with spiritual and moral evil. But this zeal in the cause of Truth too often betrays them into misrepresentations which suggest that the maxim *Nulla fides cum hæreticis* has not yet been completely expunged from their moral code. Especially in the use of unpopular question-begging epithets they are by no means sufficiently scrupulous. Such epithets as "materialism" and "atheism," being extremely unpopular, have long been made to do heavy duty in lieu of argument. In this sort of barbaric warfare the term "materialism" is especially convenient, by reason of a treacherous ambiguity in its connotations. Certain abstract theorems of metaphysics are correctly described as constituting materialism; and the persons who assert them are correctly called materialists. On the other

hand, those persons are popularly called materialists who allow their actions to be guided by the desires of the moment without reference to any such rule of right living as is termed a "high ideal of life." Persons who worship nothing but worldly success, who care for nothing but wealth, or fashionable display, or personal celebrity, or sensual gratification, are thus loosely called materialists. The term can therefore easily be made to serve as a poisoned weapon, and there are theologians who do not scruple to employ it as such against the upholders of philosophic opinions which they do not like but are unable to refute. A most flagrant instance was recently afforded by a lecturer on Positivism, who, after insinuating that pretty much the whole body of contemporary scientific philosophers are Positivists, and that Positivists are but very little better than materialists, proceeded to inform his audience that "materialists" are men who lead licentious lives.

It would be hard to find words strong enough to characterize the villainy of such misrepresentations as this could we fairly suppose them to be deliberately intended. They would imply extreme moral turpitude, were it not that they are so obviously the product of extreme slovenliness of thinking joined with culpable carelessness of assertion. The chain of ill-conceived arguments upon which they depend is some-

thing like this: Every attempt to interpret the succession of mental phenomena by means of theorems originally devised to interpret the movements of matter involves the assertion of materialism; the assertion of materialism involves the denial of personal immortality; the denial of personal immortality deprives morality of its principal sanction, and prevents us from having any higher ideal of life than the gratification of egoistic desires; *ergo*, we are justified in insinuating that philosophers who interpret mental manifestations by a reference to material structure are likely to be men of loose morals. Such is the tacit argument which underlies this kind of theological misrepresentation; and in pity for the mental confusion which it implies, we may perhaps condone or overlook the bigotry which assists in disguising its flimsiness. In truth, a more striking example of the audacity of the subjective method could not well be found. Not one of the premises from which so startling a conclusion is drawn has been verified; and it would not be difficult to show that each one involves a *non sequitur*. It might be shown that the denial of personal immortality does not deprive morality of its principal sanction, or prevent us from having any higher ideal of life than the gratification of egoistic desires. And it might be forcibly argued that the denial of personal immortality has by no means

been proved to be an inevitable corollary from the assertion of materialism, though it may freely be admitted to be a probable corollary. But with these two unverified inferences we are not now especially concerned. What concerns us is the initial *non sequitur*, — that every attempt to interpret mental manifestations by a reference to material structure involves the assertion of materialism. This is the *non sequitur* which lies at the very bottom of the theological misrepresentation, and its utter fallaciousness needs to be thoroughly exposed.

It would be grossly unjust to throw all the blame of this particular *non sequitur* upon the theologians, who have enough logical delinquencies of their own to answer for, without being required to carry the burden of their adversaries' errors into the bargain. The illegitimate inference is one which scientific writers, and philosophers of a certain school, have been quite as ready to make as theologians: indeed, I believe it was the former who first suggested it to the latter. At all events, without going into historical minutiæ concerning the origin of materialism, but confining our attention to its more recent scientific phases, we may observe that it was not a theologian, but an eminent man of science, who first suggested that the results of modern objective psychology might be represented in the formula, *Ohne Phosphor*

kein Gedanke. This formula has been caught up as a watchword by a school of atheistic writers, some of whom, as Moleschott and Vogt, rank very high as scientific specialists, but none of whom seem to be worthy of mention for psychological capacity or for acquaintance with the best thoughts of modern philosophy. The most conspicuous representative of this school is Dr. Büchner — a writer who deserves praise for his power of lucid exposition, but whose pages are too often deformed with brutalities of expression for which no atonement is made in the shape of original or valuable thought. Although this writer has no scientific reputation whatever, and although his school has no more claim to rank with the great schools of philosophy in our time than it had when the now forgotten Lamettrie represented it in the days of Hume and Kant, yet through loudness of asseveration it has succeeded in doing much to mislead and perplex the public mind with reference to the philosophic results of recent scientific inquiry. Because Dr. Büchner and his followers point to certain discoveries in nervous physiology or in transcendental physics as evidence of the materiality of mind, it has come to be currently supposed that those scientific inquirers who accept the discoveries accept also the materialistic inference. And because the ablest scientific inquirers, being more occupied in hunting for

truths than in looking about for ugly consequences, have seldom said anything on either side of the question, their silence has been interpreted as equivalent to assent, both by the materialists and by the theologians. Energetic protests, however, have been made against this erroneous interpretation, by Professor Tyndall on the part of molecular physics, and by Professor Huxley on the part of physiology; while Mr. Spencer has most conclusively demonstrated that, from the scientific point of view, the hypothesis of the materialists is not only as untenable to-day as it has ever been, but must always remain inferior in philosophic value to the opposing spiritualistic hypothesis. Let us look at some of the arguments which necessitate this conclusion.

"No thought without phosphorus!" This remark of Moleschott's has been called a "trenchant" remark. To me it seems a very barren piece of truism. I have no doubt that a century hence the fact that such a remark should have been regarded either as a valuable novelty or as an alarming heresy will be cited in evidence of the intellectual dulness of our time. If the aphorism is not restricted to the conditions under which thinking occurs within the limits of our experience, it is merely an audacious assertion, not worthy of serious refutation. If it is thus restricted, it becomes a mere platitude.

Within the limits of our experience no one supposes that thinking is done without a body. No philosopher of any school whatever, theological or scientific, maintains that during the period of human life there is such a thing as consciousness without brain. None will assert that, under terrestrial conditions, we have any experience of psychical manifestation apart from physical structure. When, therefore, some speculative physiologist singles out one of the most important chemical ingredients of brain substance, and tells us that there is no thinking done without that chemical ingredient, we have no good ground either for rejoicing over increased wisdom or for alarm at possible conclusions. The conclusions to be drawn, whatever they may be, remain just the same as before. Vision is essentially a psychical process; yet no one pretends that vision can be accomplished without an eye. If I were to proclaim on the housetops, "No vision without retinal rods," would not the common sense of mankind either rebuke my audacity in pretending that I had got possession of a new and wonderful truth, or derisively inquire my reasons for making so much outcry over such a manifest platitude?

The case remains entirely unaltered when we come to such a minute comparison of psychical manifestation and brain action as was indicated in our chapter on the Evolution of Mind.

Whatever theory be held with regard to a future life, he who admits that during the present life mental action in the gross is correlated with brain action in the gross can in no wise complain of an attempt to trace out the detailed correlations between mental action in the little and brain action in the little. If the brain is the organ of Mind, and if the daily manifestations of Mind, in all their complexity, are conditioned by the possession of such a complex organ, then the simple ultimate elements of which the complex mental manifestations are made up must be severally conditioned by the simple ultimate elements, structural and functional, which make up the complex organ and its molecular activities. In proceeding to trace out these simple ultimate correlations, we are merely analyzing two complicated groups of phenomena into their elements, in order that we may arrive at a better practical understanding of them ; and at the end of our inquiry we no more stand committed to any conclusion regarding the real nature of either group than we did at the beginning. When we admit that a blow on the head is likely to make a man insensible, we are just as much or just as little materialists as when we suggest the hypothesis that cerebral inflammation, by obstructing certain particular transit lines, may prevent certain particular associations of ideas and thus obliterate certain specific memories.

Repeating Mr. Spencer's words, we may say that "the general relation between mental manifestations and material structure traced out [in this work], has implications identical with, and no wider than, those which familiar experiences thrust upon us." In objective psychology, as in other departments of inquiry, science is but an extension of common knowledge. "That drowsiness impedes thinking, that wine excites or stupefies according to amount and circumstances, that great loss of blood produces temporary unconsciousness, — are facts admitted by every one, be his theory of things what it may. That you cannot get out of the undeveloped child thoughts and feelings like those you get out of the developed man; that the idiot, with brain permanently arrested in its growth, remains permanently incapable of any but the simplest mental actions, are propositions not denied by the most intemperate reviler of physiological psychology. But one who recognizes such facts and propositions is just as much chargeable with materialism as one who puts together facts and propositions like those which constitute the exposition [of psychical phenomena contained in this work]. Whoever grants that from the rudimentary consciousness implied by the vacant stare of the infant, up to the quickly apprehensive, far-seeing, and variously feeling consciousness of the adult, the transition

is through slow steps of mental progress that accompany slow steps of bodily progress, tacitly asserts the same relation of Mind and Matter which is asserted by one who traces out the evolution of the nervous system and the accompanying evolution of intelligence, from the lowest to the highest forms of life." [1]

It appears therefore, that, so far as objective psychology is concerned, but little support has as yet been obtained for the materialistic hypothesis. The most that psychology, working with the aid of physiology, has thus far achieved, has been to show that, within the limits of our experience, there is an *invariable concomitance* between psychical phenomena and the phenomena of nervous action ; and this, as we have seen, is but the elaborate analytic statement of a plain truth, which is asserted alike by philosophers of every school and by the common sense of every human being, — namely, that from birth until death there is no manifestation of Mind except in association with Body. But beyond this it is quite clear that objective psychology can never go. The most that psychology, working with the aid of physiology, can ever achieve, will be to show the invariable concomitance between nervous and psychical phenomena, within the limits of our experience. The most it can ever do will be to illustrate, with more and more

[1] *Principles of Psychology*, vol. i. p. 617. [§ 269.]

minute detail, that same proposition in asserting which it has been from the outset upheld by the universal consent of mankind. To enlarge the scope of that proposition, to add to it new ulterior implications, must forever remain beyond its power. Or if this is still not perfectly clear, the kindred considerations now to be drawn from the study of transcendental physics will make it clear.

It has been not uncommonly taken for granted, both by materialists and by theologians, that molecular physics, in establishing a quantitative correlation between the various modes of motion manifested throughout organic and inorganic nature, has supplied a basis whereon to found some theory of the materiality of Mind. Here, as before, the theologians have accepted the materialistic inference and aimed their assaults at the irrefragable scientific theorem, instead of admitting the scientific theorem and showing that, when rightly understood, it does not afford a premise for the materialistic inference. Mr. Spencer pithily remarks that the one class show by their fears, quite as much as the others show by their hopes, that they believe in the theoretical possibility of resolving mental phenomena into motions of matter; whereas those who really comprehend the import of modern discoveries in molecular physics are more thoroughly convinced than ever that any such re-

duction is utterly beyond the bounds of possibility. A brief consideration will suffice to show us that one of the great results of the discovery of the correlation of forces is the final destruction of the central argument by which materialism has sought to maintain its position. Henceforth the spiritualistic hypothesis may, perhaps, be still regarded as on trial, in so far as it needs much further explanation and limitation; but the materialistic hypothesis is doomed irretrievably.

For let us note well what is implied in the assertion that sun-derived radiance is metamorphosed, first into the static energy of vegetable tissue, and afterwards into the dynamic energy which maintains the multiform activity of the animal organism; and that through the liberation of a part of such dynamic energy, in the form of discharges between interconnected ganglia, there are rendered possible the phenomena of conscious activity.[1] Let us endeavour to mark out precisely what is meant by this assertion. In its present form it is a concrete statement, based upon the abstract truths that, within the limits of our experience, any given species of motion whatever has acquired its distinctive attributes through transformation from some other species, and will again lose these distinctive attributes through a subsequent transformation. For ex-

[1] See above, vol. ii. pp. 331, 339.

ample, the heat which now raises the temperature of a pound of water just one degree of Fahrenheit has acquired its present form of existence through the transformation of as much molar motion as is implied in the fall of 772 pounds of matter through one foot of space; and it will lose its present form of existence as fast as it is retransformed into molar motion of expansion, or into other modes of molecular motion, according to superinduced circumstances. So when food is taken into the organism and assimilated with the tissues, the quantity of molecular motion involved in the secretion of bile by the liver, or in the raising of the arm by an act of will, or in the knitting of a new plexus of associated ideas by the opening of new communications between brain cells, may equally be said to have acquired its present specific forms through transformation from the potential motion latent in the prepared food. So we may say, very roughly, that there is a metamorphosis of molar motion into heat and actinism; of heat and actinism into the potential motion latent in the nutriment ultimately derived from sun-nourished vegetable tissues; of this potential motion into undulations among the molecules of nerve; of these undulations back into molar motions of the muscles which move limbs, or into molecular motions of secreting glands, and so on, in a never-ending circuit. The circuit

is thus very roughly described, but such is essentially its character. But now let us note that throughout this wondrous circuit, from molar motion to molecular nerve motion, and back again to molar motion, there is no question of Mind whatever. The metamorphosis is always from one species of material motion into some other species of material motion, but never from a species of material motion into an idea or a feeling. The dynamic circuit is absolutely complete without taking psychical manifestations into the account at all. Now obviously the most that molecular physics can ever accomplish will be to point out, in more and more minute detail, the characteristics of the various metamorphoses which occur within the limits of this circuit. The ideal goal of physical inquiry would be to furnish algebraic equations for every curve described by every particle of matter during the entire series of transformations, from the arrested molar motions of the gravitating particles of the sun, down to the endlessly complex molecular motions which take place within the cerebral tissue of a mathematician engaged in solving partial differential equations. However stupendous such an achievement may seem to us who are as yet in the callow infancy of scientific inquiry, there is nevertheless no radical absurdity involved in conceiving it as theoretically possible. But now let us suppose all this actu-

ally achieved. Let us suppose physical inquiry to have reached its uttermost conceivable limit, having reduced the whole problem of motion, in all its myriad manifestations, in both inorganic and organic nature, to a purely algebraic problem, for the solution of which the requisite algebraic devices are at hand; and let us consider what we have thus achieved. Have we made the first step toward the resolution of psychical phenomena into modes of motion? Obviously we have not. The closed circuit of motion, motion, motion, remains just what it was before. No conceivable advance in physical discovery can get us out of this closed circuit, and into this circuit psychical phenomena do not enter. Psychical phenomena stand *outside* this circuit, *parallel* with that brief segment of it which is made up of molecular motions in nerve tissue. However strict the parallelism may be, within the limits of our experience, between the phenomena of mind and this segment of the circuit of motions, the task of transcending or abolishing the radical antithesis between the phenomena of mind and the phenomena of motions of matter must always remain an impracticable task. For in order to transcend or abolish this radical antithesis, we must be prepared to show how a given quantity of molecular motion in nerve tissue can become transformed into a definable amount of ideation or

feeling. But this, it is quite safe to say, can never be done. Free as we were, a moment ago, to admit the boundless possibilities of scientific inquiry in one direction, we may here at once mark the bounds beyond which, in another direction, scientific inquiry cannot advance.

For in the last resort it is subjective psychology which must render the decisive verdict as to the possibility of identifying feeling with motion; and to obtain this decisive verdict there is but one legitimate way. By a physical analysis we must ascertain what is the primordial element in motion, and by a psychological analysis we must ascertain what is the primordial element in feeling; it must then be left for consciousness to decide whether these two primordial elements are or are not in such wise like each other that the one may be substituted for the other indifferently; and from this verdict there can, in the nature of the case, be no appeal. Now it would be very rash to suppose that we have as yet arrived at a knowledge of the primordial unit, either of motion or of feeling: still we have made an approximation sufficient for the purposes of the present argument. Our analysis has progressed so far as to enable us to foresee the verdict, and to rest assured that further analysis will reiterate and not reverse it. In the chapter on the Composition of Mind, we saw that "the physical action which

accompanies psychical changes is an undulatory displacement of molecules, resulting in myriads of little waves or pulses of movement." We saw also that, "as a cognizable state of consciousness is attended by the transmission of a number of little waves from one nerve cell to another, so the ultimate psychical elements of each conscious state must correspond to the passage of these little waves taken one by one." And we were "led to infer, as the ultimate unit of which Mind is composed, a simple *psychical shock*, answering to that simple *physical pulsation* which is the ultimate unit of nervous action."[1] Here, then, are our approximately primordial elements; on the one hand a psychical shock as the basis of all consciousness, on the other hand a physical pulsation as the basis of all that molecular motion of which nervous action is a species. It is now for consciousness to decide, upon direct inspection, whether a psychical shock is so much like a physical pulsation that in a given series of propositions the one term might be substituted for the other. "Can we, then, think of the subjective and objective activities as the same? Can the oscillation of a molecule be represented in consciousness side by side with a [psychical] shock, and the two be recognized as one? No effort enables us to assimilate them. That a unit of

[1] See above, vol. iii. pp. 190, 191.

feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring the two into juxtaposition. And the immediate verdict of consciousness thus given might be analytically justified were this a fit place for the needful analysis. *For it might be shown that the conception of an oscillating molecule is built out of many units of feeling; and that to identify it with a [psychical] shock would be to identify a whole congeries of units with a single unit.*"[1]

[1] Spencer, *Principles of Psychology*, vol. i. p. 158. [Part II. chap. i. § 62.] I have taken the liberty to alter Mr. Spencer's metaphorical phrase "nervous shock" into the more literally accurate phrase "psychical shock." The term "nervous shock," though partially justified by the colloquial use of the word "nervous" in description of psychical states (as when we speak of feeling nervous or flighty), is nevertheless a bad term in an argument like the present, where the strictest accuracy is above all things desirable. For besides this psychological use of it, the term "nervous shock" is used in physiology in a sense strictly synonymous with one kind of "physical pulsation." So that, to those who pay more attention to an author's slips of expression than to his manifest meaning, the term may seem to contain the materialistic implications which it is the express purpose of Mr. Spencer's argument to avoid. Any such misapprehension is impossible if we substitute the term "psychical shock." (Mr. Spencer authorizes me to add that he thoroughly approves of this emendation.)

[On the relation between Fiske's view and Spencer's as to this point, see Fiske's statement in the address on the "Scope and Purport of Evolution" (*A Century of Science*, chap. i.).

Thus we were fully justified in stating that through no imaginable future advance in molecular physics can the materialists ever be enabled to realize their desideratum of translating mental phenomena in terms of matter and motion. We were right in hinting that one grand result of the enormous progress achieved during the past forty years in the analysis of both physical and psychical phenomena has been the final and irretrievable overthrow of the materialistic hypothesis. Henceforth we may regard materialism as ruled out, and relegated to that limbo of crudities to which we some time since consigned the hypothesis of special creations. The latest results of scientific inquiry, whether in the region of objective psychology or in that of molecular physics, leave the gulf between Mind and Matter quite as wide as it was judged to be in the time of Descartes. It still remains as true as then, that between that of which the differential attribute is Thought and that of which the differential attribute is Extension, there can be nothing like identity or similarity. Although we have come to see that between the manifestations of the two there is such an unfailing parallelism that the one group of phenomena can be correctly described

See also Spencer's final statement of his position in the sixth edition of the *First Principles* (1900), §§ 71, 71 *a.*, 71 *b.*, 71 *c.*]

by formulas originally invented for describing the other group, yet all that has been established is this parallelism. When it comes to the task of making the parallels meet, we are no better off than Malebranche with his Occasional Causes, or Leibnitz with his Preëstablished Harmony: nay, we are no better off than the ancient Gnostics, with their "æons" and their "Demiurge." Rich as are the harvests which science has obtained from these two fields, the fence which divides them has never been broken down; and until the insuperable distinction between Subject and Object, between the Conscious and the Unconscious, can be transcended, it can never be broken down.[1]

But while the materialistic hypothesis is thus irretrievably doomed, it is otherwise with the opposing spiritualistic hypothesis. It is true that we cannot directly translate Matter in terms of Spirit, any more than we can translate Spirit in terms of Matter. But we have seen that the term "matter" does not stand for any real existence, but only for one of the modes in which

[1] [Spencer's final position, as stated in the *First Principles* (loc. cit.), fully recognizes that the relations of matter and mind are indeed "inscrutable." But as to their probable causal relations (which Spencer here asserts), — these relations "are not profounder mysteries than the transformations of the physical forces into one another." See Introduction, § 41 and note.]

an Inscrutable Existence reveals itself to us within the limits of our terrestrial experience. It must always be borne in mind that we go with Berkeley to the full extent of asserting that the term "matter" means, not the occult reality, but the group of phenomena which are known as resistance, extension, colour, etc.[1] If now we proceed to the outermost verge of admissible speculation, and inquire for a moment what may perhaps be the nature of that Inscrutable Existence of which the universe of phenomena is the multiform manifestation, we shall find that its intimate essence may conceivably be identifiable with the intimate essence of what we know as Mind. In order to show how this can be, I shall cite from Mr. Spencer a somewhat lengthy passage, to which the attention of critics has hitherto been too little directed.

"Mind, as known to the possessor of it, is a circumscribed aggregate of activities; and the cohesion of these activities, one with another, throughout the aggregate, compels the postulation of a something of which they are the activities. But the same experiences which make him aware of this coherent aggregate of mental activities simultaneously make him aware of activities that are not included in it — outlying activities which become known by their effects on this aggregate, but which are experimentally

[1] See above, vol. i. p. 128.

proved to be not coherent with it, and to be coherent with one another.[1] As, by the definition of them, these external activities cannot be brought within the aggregate of activities distinguished as those of Mind, they must forever remain to him nothing more than the unknown correlatives of their effects on this aggregate; and can be thought of only in terms furnished by this aggregate. Hence, if he regards his conceptions of these activities lying beyond Mind as constituting knowledge of them, he is deluding himself: he is but representing these activities in terms of Mind, and can never do otherwise. Eventually he is obliged to admit that his ideas of Matter and Motion, merely symbolic of unknowable realities, are complex states of consciousness built out of units of feeling. But if, after admitting this, he persists in asking whether units of feeling are of the same nature as the units of force distinguished as external, or whether the units of force distinguished as external are of the same nature as units of feeling, — then the reply, still substantially the same, is that we may go farther towards conceiving units of external force to be identical with units of feeling than we can towards conceiving units of feeling to be identical with units of external force. Clearly, if units of external force

[1] See, in this connection, *First Principles*, pp. 143–156. [Part II. chap. i. § 43.]

are regarded as absolutely unknown and unknowable, then to translate units of feeling into them is to translate the known into the unknown, which is absurd. And if they are what they are supposed to be by those who identify them with their symbols, then the difficulty of translating units of feeling into them is insurmountable: if Force as it objectively exists is absolutely alien in nature from that which exists subjectively as Feeling, then the transformation of Force into Feeling is unthinkable. Either way, therefore, it is impossible to interpret inner existence in terms of outer existence. But if, on the other hand, units of Force as they exist objectively are essentially the same in nature with those manifested subjectively as units of Feeling, then a conceivable hypothesis remains open. Every element of that aggregate of activities constituting a consciousness is known as belonging to consciousness only by its cohesion with the rest. Beyond the limits of this coherent aggregate of activities exist activities quite independent of it, and which cannot be brought into it. We may imagine, then, that by their exclusion from the circumscribed activities constituting consciousness, these outer activities, though of the same intrinsic nature, become antithetically opposed in aspect. Being disconnected from consciousness, or cut off by its limits, they are thereby rendered foreign to

it. Not being incorporated with its activities, or linked with these as they are with one another, consciousness cannot, as it were, run through them; and so they come to be figured as unconscious — are symbolized as having the nature called material as opposed to that called spiritual. While, however, it thus seems an imaginable possibility that units of external Force may be identical in nature with units of the force known as Feeling, yet we cannot by so representing them get any nearer to a comprehension of external Force. For . . . supposing all forms of Mind to be composed of homogeneous units of feeling variously aggregated, the resolution of them into such units leaves us as unable as before to think of the substance of Mind as it exists in such units; and thus, even could we really figure to ourselves all units of external Force as being essentially like units of the force known as Feeling, and as so constituting a universal sentiency, we should be as far as ever from forming a conception of that which is universally sentient." [1]

I do not know where we could find anything more admirable than this lucid statement, in which the most subtle conclusion now within the ken of the scientific speculator is reached without disregard of the canons prescribed by

[1] Spencer, *Principles of Psychology*, vol. i. pp. 159–161. [Part II. chap. i. § 63.]

the doctrine of relativity. From this masterly statement it appears that while the Inscrutable Power manifested in the world of phenomena cannot possibly be regarded as quasi-material in its nature, it may nevertheless be possibly regarded as quasi-psychical. Were we compelled to choose between these two alternatives, the latter would be the one which we must perforce adopt. For besides the general reason here indicated for such preference, there would in such case be presented the more special reason, that upon no imaginable hypothesis of evolution (if the foregoing analysis be correct) can units of Mind be regarded as produced by the collocations of units of Matter. Were we constrained to such a treatment of the subject, we should be forced to admit that the actual existence of psychical energy, as a phenomenon essentially distinct from physical energy, implies, as its antecedent source, something quasi-psychical in the constitution of things.

A third alternative, however, remains open. Since we know nothing even of Mind, save as qualitatively differentiated from Matter, under the persistent conditions by which conscious activity is limited, it is open to us to maintain that the Unknown Reality which is manifested under both aspects cannot legitimately be formulated in terms of either aspect. The unconditioned Source of the phenomena which we dis-

tinguish as psychical, and of the phenomena which we distinguish as material, may well be neither quasi-psychical nor quasi-material. Whichever set of terms we use, we are using symbols the values of which are determined by our experiences of conditioned existence, and which must therefore be totally inadequate to express the characteristics of unconditioned existence. Nevertheless, in so far as the exigencies of finite thinking require us to symbolize the Infinite Power manifested in the world of phenomena, we are clearly bound to symbolize it as quasi-psychical, rather than as quasi-material. Provided we bear in mind the symbolic character of our words, we may say that "God is Spirit," though we may not say, in the materialistic sense, that "God is Force."[1] Such an utterance is, indeed, anthropomorphic. But we are now finding powerful confirmation of the argument elaborated in our Prolegomena, that a Positive mode of philosophizing is impracticable, and that we can never get entirely rid of all traces of anthropomorphism.[2] As formerly shown, "there is anthropomorphism even in speaking of the unknown Cause as a *Power* manifested in phenomena;" and if this expression is liable to be honestly misinterpreted as implying the identification of Deity with so-

[1] [See Introduction, § 34, for Fiske's later use of this passage.]

[2] See above, vol. i. pp. 270, 271.

called "blind force," and as thus conveying a *lower* conception than that upon which theology insists, then we need not shrink from the scarcely greater anthropomorphism involved in speaking of the unknown Cause as a *Spirit* manifested in phenomena. Such a choice of symbols will at least serve to show that we no more identify Deity with "blind force" than we identify Mind with "brute matter," or a psychical shock with a physical pulsation, and that, in our innermost intent, we are striving to convey a *higher* conception than that upon which theology insists.

But in thus consenting to adopt a term about which quasi-psychical connotations have clustered, we do not implicitly consent to the clothing of Deity with definable psychical attributes. The moment we use the words "intelligence" and "volition," we are using words which have distinct meanings, as descriptive of certain circumscribed modes of psychical activity in man and some other animals. Except as descriptive of these circumscribed modes of psychical activity, they have no meanings whatever: and to seek to apply them to the unlimited activity (whether quasi-psychical or not) of a Being that is not circumscribed by an "objective datum" of any sort, is simply to call into existence a number of illegitimate propositions which, if dealt with as legitimate, would entangle us once

more in the network of absurdities from which we were set free by the chapter on Anthropomorphic Theism.

Thus we are gradually finding ourselves obliged to regard the suggestion with which we ended the chapter just mentioned as something more than a mere random suggestion. Whether it be true or not that within the bounds of the phenomenal universe the highest type of existence is that which we know as Humanity, the conclusion is in every way forced upon us that, quite independently of limiting conditions in space or time, there is a form of Being which can neither be assimilated to Humanity nor to any lower type of existence. We have no alternative, therefore, but to regard it as higher than Humanity, even "as the heavens are higher than the earth;" and except for the intellectual arrogance which the arguments of theologians show lurking beneath their expressions of humility, there is no reason why this admission should not be made unreservedly, without the anthropomorphic qualifications by which its effect is commonly nullified. The time is surely coming when the slowness of men in accepting such a conclusion will be marvelled at, and when the very inadequacy of human language to express Divinity will be regarded as a reason for deeper faith and more solemn adoration.

CHAPTER V

RELIGION AS ADJUSTMENT[1]

FROM this abstract exposition of Cosmic Theism as a religious doctrine let us now proceed to consider some of the practical relations of Cosmic Theism to human life, with especial reference to conduct, which, as Matthew Arnold well says, makes up in importance at least seven eighths of life. As every system of religion has comprised, on the one hand, a theory of the world, and on the other hand, a code enjoining certain kinds of human conduct, and as we have thus far expounded Cosmism as a theory of the world, what is now to be said of the relations of Cosmism to human conduct? Or, in other words, does the enlargement of our conceptions of Divine action, in conformity with the requirements of contemporary knowledge, involve any radical alteration of the fundamental principles of action in which Religion, viewed practically, consists?

The position is often taken, by those who dissent from current ecclesiastical creeds, that there is no reason in the nature of things why the

[1] [See Introduction, § 32.]

long-established association between religion and ethics should be continued, — and to these the following inquiry will perhaps seem uncalled for. It is urged, with justice, that conduct is not necessarily dependent on creed, that equal uprightness may coexist with belief in doctrines diametrically opposite; that, in point of fact, the atheist usually leads quite as pure and holy a life as the Christian; and moreover, that it is possible to construct, out of scientific materials solely, an ethical code even more complete than any of those now generally accepted and practised. It would be useless to deny the force of these arguments. Not only is it true that science can furnish the inquirer with adequate principles of right action, but it is also true that, even without any very elaborate or thoroughly understood ethical code, the heterodox inquirer is, on the average, quite as likely to live rightly as the orthodox believer, since our characters depend far more upon our feelings, which are inherited, than upon the doctrines which are taught us. But while admitting all this, it must still be claimed that the time-honoured association of religion with morality is not arbitrary but founded in the nature of things, and that it will accordingly continue in the future. The arguments just stated present but one side of the case. For while it is quite true that character is not a product of belief, it is no less true

that action is influenced by belief. While observation shows that theological scepticism does not exert a deteriorating influence upon character, it cannot be doubted that ethical scepticism, could it become dominant, would confuse and obscure the incentives which prompt us to actions in harmony with the environment, and deter us from maladjustments. Practically the momentum of inherited impulse and bequeathed ethical tradition is so powerful that the cases in which theological scepticism has entailed permanently effective ethical scepticism have been the exception rather than the rule. But what now concerns us is the inquiry whether in the nature of things a substitution of scientific for theological symbols involves an alteration of ethical values in the grand equation between duty and action. We shall find that no such change is involved in the substitution. Though we may, and do, throw overboard the whole of the semi-barbaric mythology in which Christianity has hitherto been symbolized, we shall find, nevertheless, that we have kept firmly in our possession the ethical kernel for which Christianity is chiefly valued even by those who retain the whole of this mythology.

If we inquire into the position which every theological creed has occupied with reference to the ethical code by which it has been supplemented, we shall find that in every case it has

served to supply a powerful *sanction* to the principles of right action contained in the ethical code. That "thy days may be long in the land which Jehovah thy God giveth thee," or that "thy Father which seeth in secret may reward thee openly," *therefore* must thou do these things written in the law. Along with the moral code, embodying the principles of right action recognized by the community, there has ever been declared some theory of the relations of man to the unknowable Power manifested in the Cosmos, which has furnished incentives to the actions regarded as right and deterrents from the actions regarded as wrong. It is because religion has ever furnished this weighty sanction to morality that creeds and conduct have always been associated in men's minds; and it is because of this that narrow-minded theologians, unable or unwilling to admit that there can be any other adequate sanctions than those supplied by their own creed, so persistently argue upon the assumption that those who do not accept their creed must of necessity be morally perverse. We need not for the moment inquire into the moral value of the sanctions established by the various historic religions: whether they appeal to the purest and highest of human feelings or not, the essential point which now concerns us is the existence of such sanctions as an indispensable part of every religious system.

What now are the ethical sanctions recognized by science, and by that religious doctrine which I have here proposed to designate as Cosmic Theism? In what sense does a scientific philosophy hold to the distinction between sin on the one hand, and crime or tort on the other? Our questions may readily be answered if, bearing in mind the theoretic attitude of Cosmism toward Anthropomorphism, we note the anthropomorphic theory of sin and the anthropomorphic sanctions for righteousness. On the anthropomorphic hypothesis, sin is an offence against a personal Deity, consisting in the disobedient transgression of some one of his revealed edicts, and calling for punishment either in the present or in a future life, unless reparation be made by repentance or sacrifice. Now the theory of the Cosmist is in substance quite identical with this,[1] though expressed by means of very different verbal symbols. From the scientific point of view, sin is a wilful violation of a law of nature, or — to speak in terms of the theory of evolution — it is a course of thought or action, wilfully pursued, which tends to throw

[1] Saving only the last clause. For, as we shall presently see, science knows of no such thing as reparation for sin. Repentance cannot ward off punishment. And herein the Cosmic hypothesis is as far superior to the Anthropomorphic hypothesis from the ethical, as it is from the philosophical point of view.

the individual out of balance with his environment, and thus to detract from his physical or moral completeness of life. The seeking after righteousness is characteristic of the modern follower of science quite as much as it was characteristic of the mediæval saint; save that while the latter symbolized his yearning as a desire to become like his highest concrete conception of human excellence ideally embodied in Christ, the former no longer employs any such anthropomorphic symbol, but formulates his feeling in scientific phrase as the persistent desire to live rightly, or in entire conformity to the requirements of nature, — as Goethe expresses it, —

"Im Ganzen, Guten, Wahren, resolut zu leben."

The feeling is identical in the two cases, though the difference in the technical expression of it is as great as the difference between the theology of the "Imitation" and the science of "First Principles." Now when a law of nature has been violated (to use the current phrase), the religion of the scientific inquirer tells him that a sin has been committed; and he is smitten with a sense of self-reproach no whit less keen than that experienced by his mediæval predecessor. The distinction between the scientific and the religious view of the breach of law is thus apparent. When an act has been committed which must entail more or less mis-

ery either upon the individual himself or upon others, science merely recognizes that there has been a breach of law; but religion further declares that sin has been done, and there ensues a painful state of consciousness which, as we must carefully note, is not due to selfish dread of suffering to be encountered (since similar suffering in a righteous cause would be met with a feeling of self-approval), but is made up chiefly of self-condemnation for the inexcusable infraction of nature's ordinance. Regarded as a product of psychical evolution, this sense of sin, peculiar to the most highly developed organisms, is the analogue of the sense of pain shared in some degree by all organisms endowed with consciousness. The sense of sin, like the sense of pain, is normally the deterrent from actions which tend to diminish the completeness of the correspondence in which life consists. But while the sense of pain is common to those creatures whose incentives to action are purely selfish, the sense of sin can be possessed only by those creatures whose intelligence is sufficiently complex to enable them to recognize the relationship in which they stand to the omnipresent Power, and whose highest incentives to action are therefore quite impersonal. To feel the sting of self-reproach because of wrong-doing, without any selfish reference to the misery which the wrong-doing must inevitably entail, is the high pre-

rogative of that creature whose future career of evolution, as we have seen, must mainly consist in spiritual improvement, — and in it we may recognize the sure token of the glorious fulness of life to which Humanity must eventually attain.

Such is the crude outline of the theory of sin, and of the ethical sanctions furnished by religion, into which Cosmism metamorphoses the anthropomorphic theory. Far from rejecting as a mythologic fiction the doctrine that sin is a violation of God's decrees, entailing inevitable punishment, science recognizes therein the anthropomorphic version of the truth that every failure in the system of adjustments in which life consists is followed inevitably by pain, in some one of its lower or higher forms. And thus, by bringing the whole subject into the philosophic domain wherein the Law of Evolution holds sway, we begin to understand, so far as it is possible to understand, the philosophy of evil, pain, and wrong, which to the anthropomorphic theist, as we have seen, must ever remain a distressing and insoluble enigma. Let us briefly trace the process by which men have slowly arrived at the perception of the beneficence of pain, that we may the more clearly see how the process has been determined by the deanthropomorphization of the agencies by which pain is wrought.

In treating of the philosophy of fetishism (Part I., chapter vii.) it was shown that by primeval men, unused to scientific generalization, the forces of nature must have been likened to human volition, because there was nothing else with which to compare them.[1] Man felt within himself a source of power, and did not yet surmise that power could have any other source — and consequently he identified, without any qualification, the forces displayed outside of himself with the force of will as directly revealed in his consciousness. In this necessity of thought originated not only the personifications of ancient mythology, but also the primitive religious worship; a religion of sacrifice, of sorcery, and of terror, as different from modern religion as mythology is different from modern philosophy. Of primitive religion the most prominent as well as the most abiding phase is devil-worship. Mr. Hunter's remarks concerning the Santals will apply equally well to barbarians all over the world, as also to the primeval men from whose crude notions modern orthodoxy has inherited its terrorism. "Of a supreme and beneficent God the Santal has no conception. . . . He cannot understand how a Being can be more powerful than himself without wishing to harm him. Discourses upon the attributes of the Deity excite no emotion among the more iso-

[1] [See Introduction, § 44.]

lated sections of the race, except a disposition to run away and hide themselves in the jungle; and the only reply made to a missionary at the end of an eloquent description of the omnipotence of God, was, 'And what if that Strong One should eat me?' But although the Santal has no God from whose benignity he may expect favour, there exist a multitude of demons and evil spirits, whose spite he endeavours by supplications to avert. So far from being without a religion, his rites are infinitely more numerous than those of the Hindu."[1] The genesis of this primitive devil-worship finds its explanation in the fact that the uncontrollable agencies of nature — the storm and the earthquake, the wind and the wave — though supposed to resemble man in so far as they were intelligent and volitional agents, could not be wholly like him. Their ways were not as his ways. They were not to be counted upon. They could not be prepared for, or defended against, or reasoned with. They might bring harm; and frequently they did bring harm. Accordingly they were regarded with fear and trembling. It is not easy for us to realize the extent to which in early times the unknown was identified with the hurtful.[2] It is not pos-

[1] *Annals of Rural Bengal*, p. 181.

[2] As Humboldt says, in allusion to the long-enduring effects of this primitive inference: "Es liegt tief in der trüben Natur

sible for us adequately to represent in imagination the overpowering emotions of mingled doubt and dread which must have seized the primitive thinker when brought face to face with this omnipresent, but to him utterly incoherent universe. Where certainty is for us, for him was uncertainty. The same resistless forces which to us bring expected benefits were for him productive mainly of unlooked-for calamities. We, holding in our grasp the Aladdin's lamp of physical knowledge, may find them obedient slaves: to him, who had not unearthed the talisman, they proclaimed themselves inexorable masters. Hunger and disease, exposure to heat and cold, to the attacks of savage beasts and of unseen enemies, were stern realities of daily experience. There were neither houses for shelter and defence, nor cities for the common protection, nor arts to ensure exemption from physical discomfort. Language had not yet found need for words to denote some of the most necessary implements and some of the most ordinary processes of life. Nature was unmanageable as well as unknown, — a stumbling-block as well as a riddle.

Thus the unclassed phenomenon came to be a source of terror; for experience had taught

des Menschen, in einer ernsterfüllten Ansicht der Dinge, dass das Unerwartete, Ausserordentliche, zur Furcht, nicht Freude oder Hoffnung erregt." *Kosmos*, tom. i. p. 119.

that it was quite as likely to bring disaster as good fortune. Thus the volitional agencies by which fetishism sought to account for surrounding phenomena came to be regarded as capricious and malevolent agencies, whose wrath must be averted by prayer or sorcery, and whose favour must be bought by sacrifice. Thus arose the conception of God as a consuming fire. Thus it was that in Egypt deprecating prayers were addressed to the crocodile, and in Syria to the serpent; that Hindu mothers threw their children into the Ganges, while Carthaginians burned their new-born infants in front of the brazen image of Moloch.

This sense of a Satanic presence in nature, whether embodied in the form of a malevolent devil or in that of a ferocious deity, ever ready to burst forth with fire and consume his creatures, has been of long continuance. It lies at the bottom of mediæval witchcraft, and it shows itself in the modern "revival meetings" in which the religious theories of uneducated people still betray their close kinship with those of the savage. From the educated portion of the community, however, it has entirely disappeared; and its disappearance is manifestly due to that part of their education which has consisted in the scientific generalization of natural agencies, and in the consequent deanthropomorphization of their conceptions of force. We have seen

that, with the progress of generalization, the conception of volition is gradually excluded from all those groups of phenomena in the production of which the human will is not implicated, and is replaced by the conception of a uniform force, whose actions may be foreseen or modified, and whose effects, if harmful, may be avoided. Our ability to predict the simpler phenomena of nature has deprived them of the terrors due primitively to our anthropomorphic explanations of them. Armies retreating from destruction — like that of Nikias — have never been checked in their course by eclipses which had been foreseen; and comets have been beheld with equanimity since they have been known to move in conic sections. But coincident with the progress of our ability to predict these simpler phenomena has been the progress of our ability to modify those which are more complicated. The advancement of science is also the advancement of art. Penetrating inquisitively into the secrets of Nature, we employ our information in extorting from her her treasures. Fire is not the only bad master that we have contrived to make a very good servant. We transform heat into motion, and improve our means for travelling. We change electricity into motion, and facilitate the transfer of intelligence. The agencies which produce smallpox we compel to defeat themselves.

And thus, in many ways, we extract profit and gratification from that which is ugly and noxious; as the refuse of gas-works and the drainings of stables, when dealt with by the chemist, yield rich dyes and delicate perfumes.

Thus, as science advances, Nature is better understood. As art progresses, she inflicts less pain and bestows more pleasure. Once hated as an enemy, she is at last revered as a benefactor. Gradually it comes to be perceived that all pain arises from disregard of her wisely framed ordinances; and that, by conformity to those ordinances, pain may ultimately be avoided. Where the ancient man saw nothing but capricious volition, the modern man beholds force acting by invariable methods. The former knew not that the pain under which he was writhing resulted from a violation of Nature's edicts, and he sought to prevent its recurrence by sacrifice and supplication. The latter knows that Nature's commandments are not to be broken. He knows that to their infringement there is attached an inevitable penalty, — that misery will follow disobedience, the first time, the second time, every time; and he therefore learns to obey. Matter does not put off its resistance to save from broken bones; the stomach does not stop digesting, that poison may be innocuous; the law which couples imprudent exposure with bronchitis and pneumonia will not cease to operate,

though thousands die; nerve tissue will not renounce its properties, to prevent indulgence in evil thoughts and yielding to sinful inclinations from depraving the imagination and weakening the will. To be delivered from evil, we must avoid the maladjustments of which evil is the consequence and the symptom. Hence, while to the aboriginal man malevolence was the only conceivable source of suffering, the reverent follower of science perceives the truth of the paradox that the infliction of pain is subservient to a beneficent end. "Pervading all nature, he sees at work a stern discipline, which is a little cruel, that it may be very kind." That perpetual warfare going on throughout the animal world, whereby those no longer fit to live are spared the miseries of protracted existence, is found to be also the indispensable condition of the origination of higher forms of life. The disappearance of savage tribes before the spread of civilized races, while often accompanied by unjustifiable aggression on the part of the stronger, is perceived to involve the increase of the sum total of happiness. Thus, with Michelet, we come to regard pain as in some sort the artist of the world, which fashions us with the fine edge of a pitiless chisel, cutting away the ill-adjusted and leaving the nobler type to inherit the earth.[1]

[1] "La douleur est en quelque sorte l'artiste du monde, qui

But note that such a solution of the mystery of pain is attainable only by the complete elimination of anthropomorphism from the problem. Introduce a quasi-human will behind the series of phenomena, and we are at once confronted anew with all the difficulties mentioned in the chapter on Anthropomorphic Theism. The fact stands inexorably before us, that a Supreme Will, enlightened by perfect intelligence and possessed of infinite power, might differently have fashioned the universe, though in ways inconceivable by us, so that the suffering and the waste of life which characterize nature's process of evolution might have been avoided. It may be said that such a supposition is sheer

nous fait, nous façonne, nous sculpte à la fine pointe d'un impitoyable ciseau. Elle retranche la vie débordante. Et ce qui reste, plus exquis et plus fort, enrichi de sa perte même, en tire le don d'une vie supérieure." Michelet, *L'Oiseau*, p. 106. Compare the sublime passage concerning man, wherein Tennyson says : —

"If so he type this work of Time

"Within himself, from more to more ;
Or, crowned with attributes of woe
Like glories, move his course, and show
That life is not as idle ore,

"But iron dug from central gloom,
And heated hot with burning fears,
And dipped in baths of hissing tears,
And battered with the shocks of doom

"*To shape and use.*"

nonsense, — since we must accept, as a prerequisite for all speculation on the subject, the properties of matter and motion as we find them, necessitating as they do the process of evolution as we observe it. But to say this is to concede all that is here maintained, and implicitly to admit that, instead of postulating a quasi-human Will as the source of phenomena, we must rest content with the recognition of an Inscrutable Power, of which the properties of matter and motion, necessitating the process of evolution, with pain and wrong as its concomitants, are the phenomenal manifestations.

With the entire elimination of anthropomorphism, the conception of malevolence as the source of suffering completely vanishes, and the mind assumes an attitude of reverent resignation with reference to the workings of Divine power. Even such a catastrophe as the Lisbon earthquake, which so sorely puzzled the aged Voltaire and the youthful Goethe, lost its worst horrors when geology, discarding mythological explanations, referred it to the action of those same subterranean energies which are ever maintaining the earth in a habitable condition. The scientific inquirer must needs recognize the fact that physical forces will work their normal effects, though the result be the sending of rain alike upon the just and upon the unjust. The expansive energy of steam will slay not only

the wicked engineer who has neglected his boiler, but also the innocent children peacefully playing on the deck overhead.

> "Streams will not curb their pride,
> The just man not to entomb,
> Nor lightnings go aside
> To leave his virtues room."

But the flood and the earthquake, like the wickedness of men, in so far as the arrangements of society are not yet adequate for curbing it, must be accepted with resignation as part and parcel of the events which the constitution of our universe necessitates. Such evils, which right living will not guard against, furnish no excuse for ceasing to shun the committal of wilful wrongs, which detract to a far greater extent from the fulness of life of ourselves and our fellow creatures. The sanction by which the religion of the scientific inquirer enforces its ethical code is the certainty that maladjustment will be followed, always by the suffering or degradation of the wrong-doer himself, and usually by the suffering of others who are innocent. And while in this respect there is no essential difference between the Cosmic and the Anthropomorphic theories, on their ethical sides, there is another respect in which the sanction recognized by the former is far more powerful, and must in time become far more effective, than the sanction recognized by the

latter. For the current anthropomorphism, in this as in other points betraying its kinship to primeval fetishism, asserts that by repentance and prayer the evil effects of sin may be avoided. The anthropomorphic theist sees in his Deity a being so nearly like himself as to be willing to interfere with the ordinary course of things and dissociate the act of wrong-doing from its legitimate penalty. As the father puts forth his arm and saves his falling child from the natural consequences of a false step, so it is supposed that God will, in certain cases, turn aside the blow which nature has in store for human misdeeds. Science knows of no such interference with the law that pain is consequent upon maladjustment. The deed once done will work its full effects, save in so far as checked by counteractions. He who has swallowed arsenic will be saved, not by prayer, but by an emetic. He who has yielded to temptation may indeed, by the repentant feeling of which prayer is the expression, secure himself from future yielding; but the tendency toward loss of self-control, initiated by the first surrender, cannot be rendered non-existent by any *ex post facto* act of contrition, though its operation may be counteracted. And if the misdeed, as usually happens, has involved others than the agent, its evil consequences must endure and ramify, until they at last disappear through some natural process

of equilibration. No amount of repentance for lying can deprive lies of their tendency to weaken the mutual confidence of men and thus to dissolve society. The lie once told must work its effects, as surely as the stone dropped into water must give forth its arrested motion in rippling circles. No penance or priestly absolution can do away with the persistence of force.

Obedience to the so-called "laws of nature," which are the decrees of God, is therefore the fundamental principle of religion viewed practically. And as was hinted at the close of the twenty-second chapter of Part II., religion, as thus interpreted, has a wider meaning than morality. For as we saw, in the chapter referred to, that a philosophy of hedonism has for its subject matter the principles of action conducive to the right living of the individual so far as his own happiness is concerned, and that a philosophy of morality has for its subject matter the principles of action conducive to the right living of the individual so far as the well-being of the community is concerned; so a philosophy of religion has for its subject matter the relations of the individual to the Inscrutable Power manifested in the universe, and the principles of action conducive to his right living considered as a part and parcel of the universe. To live in conformity to Nature's decrees is to live mor-

ally, in the common acceptation of that term, and something more beside. For there are many actions which, as immediately concerning none but the individual, are technically neither moral nor immoral, but which nevertheless are right or wrong. Overeating, for example, which can hardly be termed immoral, and which the current hedonism mildly characterizes as imprudent, may from a religious point of view be regarded as wrong or sinful. I cite this homely illustration because it leads directly to the pith and centre of the truth which I am seeking to explain. Hedonism, of which the highest principle of action is personal selfishness, regards the individual as having a right to do what he likes with his own body. Religion declares that he has no such right, but on the other hand has duties toward himself which he is as much bound to discharge as if they directly concerned other people. Religion, therefore, extends the rules of right and wrong primarily derived from the relations of the individual to the community, until they cover even the self-regarding actions of the individual. And what is this but establishing rules of action concerning the individual in his relations to what we call Nature or the Universe? Finally, as the organized moral sense takes cognizance of actions injurious to the community, visiting them with the stings of self-reproach without any direct or conscious tracing

out of their probable injurious consequences; so the religious sense takes cognizance of all actions whatsoever which come within the class of maladjustments, whether they directly concern the community or not, and the feeling of self-condemnation arises irrespective of any direct estimate of probable consequences. For the religious sense is primarily based upon the aspiration — the noblest which any creature can entertain — after complete fulness of life; and any thought or act, any sin of omission or of commission, inconsistent with such aspiration, awakens the painful consciousness of shortcoming, without any reference to those lower considerations of pleasure and pain of which alone hedonism takes cognizance.

Such, in brief outline, is the theory of religion which seems to me most thoroughly consonant with our present knowledge. Scanty justice can be done, in one short chapter, to so great a subject. But a detailed exposition would not be in keeping with the purpose of the present work. It is not my aim to propound a complete theory of religion, or to prepare the way for the inauguration of any new religious system — for I should regard any undertaking of this kind as *ab initio* self-convicted of absurdity — but simply to show that it is in the power of Science, without proving recreant to its own methods, to

maintain every one of the fundamental truths which give to Religion its permanent value. Starting from the knowledge of nature which we now possess, and without making appeal to venerated traditions based upon the scantier knowledge possessed by relatively barbarous ages, I have sought to show that the truths already discerned and asserted in these traditions — the fundamental truths to which alone the traditions owe their permanent hold upon men's minds — are in no wise shaken, but rather confirmed and reiterated by our present knowledge. For my purpose, this has been sufficiently shown in the present chapter and its two predecessors. For not only have we seen that scientific inquiry, proceeding from its own resources and borrowing no hints from theology, leads to the conclusion that the universe is the manifestation of a Divine Power that is in no wise identifiable with the universe, or interpretable in terms of "blind force" or of any other phenomenal manifestation; but we have also seen that the ethical relations in which man stands with reference to this Divine Power are substantially the same, whether described in terms of modern science or in terms of ancient mythology. And in so far as there is any difference between the scientific and the mythologic view of the sanctions by which these ethical relations are maintained, we have seen that the sanctions recognized by

the former are even more powerful than those recognized by the latter; while, lastly, as regards the basis of these ethical relations, the superiority of the scientific view is most conspicuously manifest. Far from its being true, as Mr. Mivart seems to fear, that the Doctrine of Evolution leaves morality without a theoretical basis, it supplies for it a theoretical basis incomparably deeper and stronger than has ever been supplied for it by any anthropomorphic theory of things. For not only does the Doctrine show that the principles of action which the religious instincts of men have agreed in pronouncing sacred are involved in the very nature of life itself, regarded as a continuous adjustment; but it shows that the obligation to conform to these principles, instead of deriving its authority from the arbitrary command of a mythologic quasi-human Ruler, derives it from the innermost necessities of that process of evolution which is the perpetual revelation of Divine Power. He to whom the theory of evolution, in all its details, has become as familiar as the saws and maxims of the old mythology are to him who still accepts it, will recognize that to be untrue to the highest attainable ethical code is to be untrue to philosophy, untrue to science, untrue to himself. Thus in the grand equation between duty and action, the substitution of scientific for theological symbols involves no alteration of ethical

values. And thus in casting aside the mythologic formulas in which religious obligation was formerly symbolized, we do but recognize the obligation as more binding than ever.

In criticism of the religious theory thus briefly expounded, it will doubtless be urged that such religion is too abstract, too coldly scientific, to have any general influence upon action, and can therefore be of no practical value. The conception of sin as a phase of maladjustment will be pronounced incapable of awakening the needful feelings unless there be joined to it the anthropomorphic symbol of an offended God. And it will moreover be asserted with vehemence, that in place of a Father whom men can love and venerate, we are giving them a mere philosophical formula, calling for no warmer feeling than calm intellectual assent. Granting that our doctrine is philosophically the reverse of atheism, it will be urged that here extremes meet, — and that an infinite and therefore unknowable God is practically equivalent to no God at all.

In reply to the latter objection it is hardly necessary again to remind the objector that upon similar grounds, and with equal plausibility, the early Christians were called atheists by their pagan adversaries. The reproach of atheism has been well defined, by Mr. R. W. Mackay, to

be the reproach which the adherents of a lower creed endeavour to cast upon those of a higher one. The less anthropomorphic the symbol by which Deity is represented, the less readily imaginable it is as something which can be seen, or heard, or prayed to, the less existent does it appear. And as we proceed to take away, one by one, the attributes which limit Deity, and enable it to be classified, we seem, no doubt, to be gradually destroying it altogether. Nevertheless, to him who has thus far intelligently followed this exposition, it will not be necessary to demonstrate that the symbolization of Deity indicated by the profoundest scientific analysis of to-day is as practically real as the symbolization which has resulted from the attempts of antiquity to perform such an analysis, and is in every way more satisfactory alike to head and heart. To him the most refined anthropomorphism to be met with in current theological treatises will no doubt seem as unsatisfactory as the anthropomorphism of orthodox "revivalists" must seem to Mr. Hutton or Mr. Martineau.[1]

Indeed there are few philosophical terms which have more thoroughly brought out the inveterate tendency of men to mistake the counters of thought for its hard money than this term "Unknowable." Alike from Idealists and Positivists, from theologians of every school

[1] [See Introduction, § 42.]

and from penny-a-liners of no school, we hear long arguments based upon the vague connotations which the word "Unknowable" calls up, without any reference to the precise sense in which the symbol is used in Mr. Spencer's philosophy,—nay, without even a suspicion that the symbol may have a precise value in some measure purified from some such connotations. At this stage of our exposition, it is enough to suggest the fallaciousness of such argumentation, without characterizing it in detail. It is enough to remind the reader that Deity is unknowable just in so far as it is not manifested to consciousness through the phenomenal world — knowable just in so far as it is thus manifested; unknowable in so far as infinite and absolute — knowable in the order of its phenomenal manifestations: knowable, in a symbolic way, as the Power which is disclosed in every throb of the mighty rhythmic life of the universe; knowable as the eternal Source of a Moral Law which is implicated with each action of our lives, and in obedience to which lies our only guaranty of the happiness which is incorruptible, and which neither inevitable misfortune nor unmerited obloquy can take away. Thus, though we may not by searching find out God, though we may not compass infinitude or attain to absolute knowledge, we may at least know all that it concerns us to know, as intel-

ligent and responsible beings.[1] They who seek to know more than this, to transcend the conditions under which alone is knowledge possible, are, in Goethe's profound language, as wise as little children who, when they have looked into a mirror, turn it around to see what is behind it.

To the other objection above hinted at, it may be replied that undoubtedly the conception of sin here developed is too abstract to awaken the needful feelings in any save those who have obtained, either through their own inquiries or by the aid of instruction from others, a firm grasp of some philosophic theory of the universe like the one crudely sketched in the present work. For the larger part of the world to-day the anthropomorphic doctrine of sin is unquestionably the better one, — and it is the doctrine held by the larger part of the world. If it were possible for men to come by the thousand, as on a second day of Pentecost, and embrace the views here expounded, or others like them, without having slowly and surely grown to them, there would be great risk of their going away with a frail and unserviceable religious theory. But as it is absolutely certain that such views will never become prevalent until the scientific philosophy upon which they are based has become generally understood and accepted,

[1] See above, vol. i. pp. 139, 140.

and as by that time they will necessarily have come to appear quite substantial and practical, there appears to be but little weight in the objection referred to.

Indeed, as the next chapter will plainly show, nothing can be farther from the intentions of the scientific thinker than the demand that contemporary society shall give up any of the religious doctrines with which it is able to rest contented, in exchange for doctrines which to all minds save those sufficiently instructed in science are likely to seem shadowy and oversubtle. Far from proposing to institute a new religion which, like Islam, is to overrun the world and wrench all men suddenly from their idols, our aim is simply to point out some of the more important modifications which current religious doctrines seem destined to undergo in becoming accepted and assimilated by thinkers whose theories of things are based wholly upon irrefragable scientific truths. That the Doctrine of Evolution, which is now the possession of a few disciplined minds, will eventually become the common property of the whole civilized portion of the human race, is, to say the least, very highly probable. In view of this probability, it seems to me a worthy end for our philosophic inquiry, if we can ascertain that, in spite of the total change in the symbols by which religious faith finds its expression, nevertheless

the religious attitude of mankind will remain, in all essential respects, unchanged. I shall endeavour to show, therefore, in the following chapter, that with reference to the fundamental truths of Christianity, and likewise with reference to the time-honoured institutions which are woven into the fabric of modern society, our Cosmic Philosophy is eminently conservative, — owning no fellowship either with the radical Infidelity of the eighteenth century or with the world-mending schemes of Positivism.

CHAPTER VI

THE CRITICAL ATTITUDE OF PHILOSOPHY[1]

OUR outline sketch of the Cosmic Philosophy based on the Doctrine of Evolution would remain seriously defective without some account of its critical bearing with reference to past and present religious beliefs and social institutions. Since the reception of a number of definite opinions concerning man in his relations to the universe and to his fellow creatures must leave their possessor in a certain characteristic attitude — aggressive or sympathetic, iconoclastic or conservative — toward the multitude of opposite or conflicting opinions by which he is surrounded, it becomes desirable for us to ascertain whether the critical temper of our Cosmic Philosophy tends toward the subversion or the conservation of that complex aggregate of beliefs and ordinances which make up the social order amid which we live. Our object will be best attained, and our results will be most clearly presented, if we begin by considering some of the philosophic contrasts

[1] [See Introduction, § 33.]

between the statical and dynamical habits of thinking, to which attention was called in an earlier chapter.

A statical view of things, as I have above defined it, is one which is adjusted solely or chiefly to relations existing in the immediate environment of the thinker. Certain groups of physical phenomena, certain psychical prejudices, certain social customs, having existed with tolerable uniformity over a limited portion of the earth's surface, it is assumed either that the given phenomena have always existed, or at least that they enter by divine prearrangement into the eternal order of things in such a way that any thoroughgoing alteration of them must involve universal anarchy and ruin. The fundamental doctrine of the philosophy which is determined by this statical habit of interpreting phenomena is the Doctrine of Creation. The world is supposed to have been suddenly brought into existence at some assignable epoch, since which time it has remained substantially unaltered. Existing races of sentient creatures are held to have been created by a miraculous fiat in accordance with sundry organic types which, as representing unchangeable ideas in the Divine Mind, can never be altered by physical circumstances. The social institutions also, amid which the particular statical theory originates, are either referred back to the foundation of the world, as is

the case in early and barbaric mythologies; or else, as is the case with modern uneducated Christians, they are supposed to have been introduced by miracle at a definite era of history. In similar wise the existing order of things is legitimately to endure until abruptly terminated by the direct intervention of an extra-cosmic Power endowed with the anthropomorphic attributes of cherishing intentions and of acting out its good pleasure. Facts of palæontology, such as the extinction of myriads of ancient animal and vegetal species, are explained as the result of innumerable catastrophes determined by this same extra-cosmic Deity; and strange geologic phenomena are interpreted by the myth of a universal deluge which left them once for all just as we see them. Likewise the social institutions and the religious beliefs now existing by express divine sanction must remain essentially unaltered under penalty of divine wrath as manifested in the infliction upon society of the evils of atheism and anarchy. Hence, as the Doctrine of Creation is itself held to be one of these divinely sanctioned religious beliefs, the scientific tendency to supersede this doctrine by the conception of God as manifested not in spasmodic acts of miracle, but in the gradual and orderly evolution of things, is stigmatized as an atheistical tendency, and the upholders of the new view are naturally enough accredited with

a desire to subvert the foundations of religion and of good conduct. Hence it is that even such scientific writers as Mr. Mivart — unable to escape the evidence in favour of Evolution which is supplied by their own studies, yet somewhat desperately clinging to the philosophic views which are founded upon the Doctrine of Creation — are now and then guilty of remarks much better befitting ignorant priests than men who have lived in direct contact with modern scientific thought. That dominance of the statical habit of thinking, which leads Mr. Mivart to prefer the irregular action of "sudden jumps" to the slow but regular operation of natural selection, leads him also to assert that the Doctrine of Evolution, as consistently held by Professor Huxley, tends toward the intellectual and moral degradation of mankind and toward the genesis of "horrors worse than those of the Parisian Commune!"[1]

Before proceeding to show how assertions of this sort are, from the evolutionist's point of view, as reckless and absurd as, from Mr. Mivart's point of view, they are justifiable and logical, let us note that the statical habit of thinking is by no means monopolized by the orthodox or by those whose philosophic theories consist mainly of elements inherited from primeval mythology. The progress of scientific

[1] *Contemporary Review*, January, 1872, p. 196.

discovery since the time of Galileo and Bacon has but gradually, and as its newest result, established the Doctrine of Evolution ; yet it has, from the very outset, assumed a hostile attitude toward the body of mythical conceptions of which the current Christian theologies have been largely made up. The consequence of this has been the rise of a purely negative iconoclastic style of criticism, both in religion and in politics, which, in spite of its deadly hostility to the prevailing orthodoxy, has nevertheless been equally characterized by theories and aims which are the products of the old statical habits of thought. While orthodoxy and its companion legitimism have regarded the existing religious and social order, not as a product of evolution, but as a divinely appointed and therefore eternally sacred order of things — on the other hand iconoclasm, whether manifested in religion or in politics, has regarded the existing order of things, not as a product of evolution, but as the work of artful priests and legislators of antiquity, which may accordingly be destroyed as summarily as it was created. Even while justly inveighing, therefore, against patent absurdities or flagrant wrongs in the established order of things, the iconoclast proceeds from a point of view as untenable as that occupied by his orthodox antagonist. Rejecting the mythical conception of the established order as in

any especial sense divinely appointed, he nevertheless borrows from the old mythology its notion of cataclysms, and vainly imagines that beliefs and institutions which suit the intellectual and moral needs of half the world can be incontinently eradicated or overthrown by direct assaults from without. Reasoning, then, upon this inadequate basis, and being as incapable of appreciating sympathetically the beliefs of a bygone age as his orthodox opponent is incapable of emancipating himself from such beliefs, the controversy between the two becomes naturally barren of profit though fruitful in recrimination; and each regards the other with a dislike or a distrust which, though justifiable enough when considered from the points of view respectively occupied by the antagonists, nevertheless seems barbaric or childish to those who have reached a higher standpoint.

This higher standpoint is furnished by what I have called the dynamical habit of looking at things as continually changing in a definite and irreversible order of sequence. That this habit should not have been acquired, save by two or three isolated minds, until the present century, is not to be wondered at, since for the full acquirement of it there is needed a familiarity with scientific conceptions of genesis which could not have been gained at any earlier date. But as soon as the tendency to contemplate all pheno-

mena as the products of preceding phenomena has become fairly established, a marked change is noticeable in the current style of criticism. The comparative method is found to be as applicable to religious beliefs and social or political institutions as it is to placental mammals or to pluperfect tenses. And so the habit of regarding the existing order of things as on the one hand ordained of God, or on the other hand maliciously contrived by the Devil, gradually fades away, and is replaced by the habit of regarding it as evolved from some preceding order of things, and as in turn destined normally to evolve some future order. Hence the evolutionist perceives that it is not by mere controversial argument that mankind can be led to exchange the mythological for the scientific point of view. He regards the process as one, not of sudden conversion, but of slow growth, which can be accomplished only by the gradual acquirement of new habits of thought, — habits that are formed day by day and year by year, in the course of a long contact, whether immediate or not, with the results of scientific inquiry. Thus the evolutionist owns no fellowship with Jacobins and Infidels, for he has learned that ingrained habits of thought and favourite theories of the world, being the products of circumstances, must be to a certain extent adapted to the circumstances amid which they exist;

and he knows that they cannot be destroyed, and ought not to be destroyed, save as they are gradually supplanted by habits of thought that are relatively more accurate and by theories of the world that are relatively more complete.

In view of these considerations we may the better comprehend the significance — upon which I formerly (Part I., chapter vi.) insisted — of the change in the attitude of philosophy of which Comte's celebrated doctrine of the "Three Stages" was partly the cause and partly the symptom. In spite of his hostility to the Doctrine of Evolution, in most of the forms in which he came into contact with it as technically stated, Comte was nevertheless thoroughly inspired by the comparative method, so far as the study of history was concerned. As far as was possible with his slender scientific resources, he looked at human affairs with the eye of an evolutionist. When he announced it as a law that every human conception must pass through three stages — the theological, the metaphysical, and the positive — though his statement was a crude one, it nevertheless clearly showed that a time had come when opinions were no longer to be tried by their conformity to some absolute standard, whether of orthodoxy or of radicalism, but were henceforth to be estimated in their relations to the circumstances which had given rise to them.

Those who have most carefully studied the iconoclastic philosophy of Voltaire and the *Encyclopédistes* of the eighteenth century will best appreciate the character and extent of the revolution in the attitude of philosophy which was effected by this new method of criticism. In the opinion of those metaphysical thinkers, everything old was wrong, and anything new was likely to be right. They classified men, not relatively, as ancients, mediævals and moderns, but absolutely as fools and philosophers; the philosophers being all who subscribed to the doctrines of the *Encyclopédie*, the fools being all those who believed in miracles or in a personal God. So utterly destitute were they of that historic sense which enables the critic to enter into the spirit of the epoch which he is criticising, that they could not interpret the mythology of antiquity and the theologic dogmas of the mediæval Church otherwise than as a set of ingenious devices contrived by priests and rulers for the ensnaring and subjugation of mankind. Perhaps nothing can better illustrate the barrenness of their point of view than their undiscriminating admiration for the Emperor Julian, whose memory they exalted because of his attempt to stop the progress of Christianity; this being the very reason for which that monarch is now justly regarded as one of the most blindly retrograde statesmen that ever lived.

Such was their criticism — a mere bald negation and disavowal of all that had preceded them. And such being their criticism, such also was their political philosophy — an unqualified protest, primarily against feudalism, monopoly, and divine right, but ultimately, as carried out by Rousseau, against all constraint whatever of man by man, and therefore against the very constitution of society. The immortal pamphlet in which this greatest of sophists sought to demonstrate that all civilization, all science, and all speculative culture is but an error and a failure, and that the only remedy lies in a return to primitive barbarism, — was the legitimate outcome and *reductio ad absurdum* of a philosophy which began by forcibly severing itself from all historic sympathy with the time-hallowed traditions of our race.

Such a philosophy may end, as it has ended, in anarchy of thought, but not in rational conviction. It cannot organize a new framework of opinions, nor can it even thoroughly accomplish the task of destroying the old framework. It may indeed, as it has done here and there, knock the venerable edifice into unshapely ruin, but it cannot sweep away the cumbersome débris, and leave the ground clear for the erection of a new and more permanent structure. It discredits altogether too profoundly the earnest work of that average human intelligence of past

times, from which all our individual intelligences, with all their real or fancied enlightenment, are both by instruction and by inheritance derived. To refute the mediæval conception of the world, without accounting for its long predominance, was to leave it but half refuted. And accordingly, when this negative philosophy was brought to a practical test by the Revolution of 1789, its inefficiency, both for construction of the new, and for thorough destruction of the old, was made painfully manifest. It soon became evident that more than one brick of the mediæval edifice had been left standing, to serve as an obstruction. In France — then the centre of the European intellectual movement — there set in a powerful reaction. Against the revolutionary school of negative philosophers and anarchical statesmen, there asserted itself a retrograde school, which saw no escape save in a return to the mediæval conception of the world and a renewal of adherence to mediæval principles of action. This retrograde movement was represented in politics by Napoleon, the latter half of whose career was characterized by the conscious effort to imitate the achievements of Charles the Great; in literature by Chateaubriand; in psychology by Laromiguière and Maine de Biran; and in general philosophy by Joseph de Maistre. The last-named writer, who, for reasons easily explicable, has

been too little studied, and whose true position in the history of thought Comte was the first to perceive and point out, will perhaps be remembered by future generations as the last heroic champion of a lost cause. Like Don Diego Garcia, whom Cervantes has immortalized, this unterrified knight took it upon himself to defend single-handed the fastnesses of mediæval theology against the whole invading army of modern scientific conceptions. With that uncompromising fanaticism which characterizes men who abandon critical reflection in order to constitute themselves the advocates of a cause, De Maistre undertook to annihilate physical science and the group of philosophic notions to which its discoveries had given rise. According to him, Kant was an ignorant charlatan, Bacon an atheist in hypocritical disguise, and the so-called Baconian philosophy "a spiritless materialism," uncertain and unsteady in its expression, frivolous in tone, and full of fallacies in every assertion. In place of this "spiritless materialism" he would give us the full-blown Catholicism of the days of Hildebrand, every subsequent variation from which has, in his opinion, been due, not to disinterested seeking after higher truth, but to a madness of neologism, a diseased craving after new and strange devices.

In these interesting opinions — interesting

because they come, not from a peevish and ignorant priest, but from a man of wide culture, worldly wisdom, and undoubted intellectual power — may be seen the violence of the reaction against that negative philosophy which, in its effort to break entirely with the past, had assisted in bringing about the speculative atheism and practical anarchy of 1793. We have now to note that, from the statical point of view which he occupied, De Maistre was perfectly right in regarding modern scientific thought as an enemy to society which must be put down at whatever cost. For as modern science had not yet reached that conception of gradual change which underlies the Doctrine of Evolution, while it had become distinctly conscious of its hostility to the current mythologies, it assumed the attitude of Atheism with reference to Christian theology and of Jacobinism with reference to the institutions of Christian society. Now it is perfectly true that the practical outcome of these kindred forms of iconoclasm, could they be allowed to have their way unhindered, would be the dissolution of society and the return to primeval barbarism. For since it is impossible for a given state of civilization to be made to order, even by the greatest political genius, or to be produced in any way save by evolution from an antecedent state, it follows that the dissolution of the social relations existing at any

epoch would simply leave the work of civilization to be (at least, to a great extent) done over again. An instructive historical example of such a dissolution of social relations, partially effected, and of the consequent partial return toward barbarism, is to be found in the history of Romanized Europe from the fourth to the tenth centuries of the Christian era. And as this partial dissolution cannot be referred solely to the barbaric attacks from without — which during at least seven centuries had been steadily kept up without impairing the integrity of the Empire — it must be referred to causes operative within; to the demoralization consequent upon general scepticism as to the validity of the principles of action by which men had formerly been guided. Now the violent breaking up of the feudal and mediæval Christian system, which occurred during the last century, was attended by some of the same dangerous symptoms as those which marked the dissolution of ancient polytheism and ancient notions of civic patriotism; though in the modern case the succession of phenomena was more rapid, and there were no assaults from outside barbarism to complicate matters. We have lately remarked upon the curious phenomenon of a free-thinker, like Rousseau, openly advocating a return to barbarism, upon the ground — which admirably illustrates his statical view of things — that social relations

were due to a primitive contract, from which the contracting parties might at any time withdraw. It is also worth noting that, under the practical application of Rousseau's doctrines by his apparently well-meaning but narrow-minded and fanatical disciple, Robespierre, the rejection of Christianity was followed by an act of adoration toward a courtesan which would have been more in keeping with early polytheistic ages, and the overthrow of feudal tyranny was followed by a mode of settling political questions such as is normally practised only among societies of primitive type. It is significant also, to the evolutionist, that this partial dissolution of social relations should have been followed by that disgraceful epoch in which principles of international equity worthy only of Attila or Genghis Khan were embodied in the barbarous ethical code of the First Empire.

A still more complete illustration of the tendency of pure iconoclasm toward social dissolution is to be found in certain radical theories concerning labour, property, and marriage, which have been current during the present century among people untrained in science and unfamiliar with the lessons of history, and which played their part in shaping the policy of the Parisian Commune of 1871. For the purposes of our inquiry it is not necessary for me to offer a matured judgment concerning this unfortunate his-

torical transaction in all its actual complexity, even were I competent to do so. It is enough for us to remember that among those political leaders who sought to inaugurate the reign of the Commune, a considerable number professed to hold the doctrines commonly known as communistic, and that the social relations which they were intent upon establishing are precisely those which Sir Henry Maine has shown to have existed among primeval men, and which exist to-day among the lowest races. This desire to return to the community of property and of wives characteristic of primitive savagery, to regulate human concerns by *status* and not by contract, to crush out capital and with it the possibility of any industrial integration, to abolish the incentives which make man sow to-day that he may reap in the future, to destroy social differentiation by constraining all persons alike to manual labour, to strangle intellectual progress by permitting scientific inquiry only to such as might succeed in convincing a committee of ignorant workmen that their discoveries were likely to be practically useful, to smother all individualism under a social tyranny more absolute than the Hindu despotism of caste; this desire, it is obvious, is simply the abnormal desire to undo every one of the things in the doing of which we have seen that social evolution consists. It is, in short, the theory of Rousseau

unflinchingly carried into details, — though, in deference to the watchwords of the present age, it is couched in expressions which imply a sympathy with human progress.

For such abnormal phenomena as those of the Terror and the Commune, there is no doubt a deeper cause than the prevalence of anarchical social and religious theories. Such phenomena are strictly analogous to those of disease, indicating that sundry social functions are out of balance, and that the social organism is violently striving to regain equilibrium even at the risk of premature dissolution. Scientifically considered, the Commune was a case of retrograde metamorphosis, quite analogous to cancer in the individual organism; and it was due to a minor failure of adjustment incident upon a rapid change in the social environment. Increased wealth and a heightened standard of comfortable living, entailing prolonged labour and more intense brain work, leave the least industrious and intelligent members of the community in misery little removed from starvation. And while under the unchecked operation of natural selection these unadapted members of the community would soon perish, as the lunatic and the drunkard would perish, we nevertheless save them artificially, as we artificially protect the drunkard and the lunatic; and we do so rightly, because the repression of our humanitarian feel-

ings would entail far greater damage to society than the survival of these incapables. But in surviving they constitute a growth of a lower order of vitality, like a cancer implanted in nobler tissues, and their effort is to abolish a civilization of which their own misery is, for the time being, the inevitable result, and to reinstate that primitive order of things in which the strong fist and the strong passions were not yet at the mercy of the keen intelligence and the large capacity for toil. Here, as in the case of the abnormal individual desires treated in the concluding chapter of Part II., we find a number of unadjusted cravings which natural selection can but imperfectly deal with, and which it must be left for some process of direct adaptation slowly to adjust. An analogous though not entirely similar explanation will apply to the case of Robespierre and the Terror.

But while such pathological phenomena can by no means be explained as solely due to certain anarchical theories social and religious, it still remains true that between the abnormal social phenomena and the anarchical theories there is a very close kinship — such that the theory finds itself practically incarnated in the social event, while it is through the anarchical theory that the abnormal social event finds itself redeemed from the odium attaching to sheer criminal malevolence, and entitled to that slight

modicum of credit which we are wont to accord to sincerity when allied with destructive fanaticism. It is as true that the inconoclastic theory naturally lends itself to the purposes of the Jacobin or the Communist as it is that the Jacobin or the Communist naturally justifies to himself his purposes by an appeal to the iconoclastic theory. Hence it is undeniable that when modern scientific thought, not yet having reached a dynamical view of things, allied itself to the spirit of mere negative protest against existing beliefs and institutions, it might well have seemed to a thinker like De Maistre to be irreconcilably hostile to all the habits and aspirations which give to civilized life its value.

Now the dynamical view of things, however crudely announced by Comte in his theory of the "Three Stages," differed widely from the statical view of De Maistre; for it proclaimed that we must found our general conception of the world and our plans for social amelioration upon a synthesis of special scientific truths, established by the use of the objective method, and not upon a congeries of theological dogmas, established originally by the use of the subjective method, and afterwards certified only by a perennial appeal to some authority assumed as infallible. It differed equally from the statical view represented by the iconoclasm of the eighteenth century; for it said, we cannot ignore

the past, or treat it with contumely; the men who originated mythological explanations of natural phenomena were neither knaves nor the dupes of knaves, but genuine philosophers who made the best use of such implements of research as lay before them; men's conceptions of the world have been progressively stripped of their anthropomorphic vestments, and the scientific mode of thought, which, manifesting itself here and there in fragmentary generalizations, has all along been determining the progress, must ultimately, organized in a series of grand, all-embracing generalizations, reign supreme: the history of human thought is thus a development, and each creed or system, no matter how absurd it may at first appear, is a phase of that development; so that to construct a philosophy or a polity *de novo*, out of abstract principles, without reference to the concrete facts of past history, is simply to build a castle in the air.

Thus would Comte have answered on the one hand the Jacobins and on the other hand the Ultramontanes, with both of whom he has, by a strange but not inexplicable fate, been charged with owning fellowship. Thus we arrive at the philosophic explanation of the unparalleled range of his historic sympathies, of the generous recognition which he was ever ready to accord to the crude but needful and serviceable beliefs and institutions of earlier ages, and to their repre-

sentative men of whatever creed. And thus, too, we are enabled to appreciate one of Comte's principal reasons for calling his system of philosophy "Positive." In sharp contrast with the *negative* philosophy of the atheists and Jacobins, its purpose was not to overthrow old beliefs by an assault from without, but to construct, upon the basis of the positive truths already furnished by science, a new system of beliefs, which should account for the old ones and supplant them by sheer force of its superior catholicity. For five centuries, said Comte, science has been arrayed in apparent hostility to religion, and philosophy has been chiefly employed in disintegrating Christian theology and feudalism: the time has now come for this negative work to be regarded only as incidental to the positive work of integrating scientific truths into a body of philosophic doctrine, upon which may ultimately rest a new theory of religion and a reorganized social polity.

As thus described, the critical attitude assumed by Positivism may appear to be identical with that which is the result of a thorough adherence to the Doctrine of Evolution. There is, however, a profound difference between the position of the evolutionist and that of the positivist, which it is well worth our while to characterize at some length, even at the risk of an apparent digression. Our subject is so very complex, by rea-

son of the wide range of its practical applications, that we shall be greatly helped — as we have already on many occasions been helped — by contrasting our own view with that Comtean view which superficially resembles it. When we have noticed the two great errors — both of them due to imperfect apprehension of the nature of evolution, which left Comte, in spite of himself, in an attitude of hostility both to the current Christian theology and to the existing framework of society, we shall have virtually illustrated, with satisfactory clearness, our own conservative point of view.

In the chapter on Anthropomorphism and Cosmism the first of the two fatal errors of Positivism was elaborately described and criticised. It was shown that, although by his theory of the three stages Comte announced his philosophy as a continuous development from older theological philosophies, and although he declared himself determined not to break with the past, yet nevertheless his explicit ignoring of Deity constituted in itself a breach with the past which no amount of continuity in other respects could remedy or atone for. We saw that, in spite of their numberless superficial differences, all historic religions have been at one in the affirmation of a Supreme Power upon which man is dependent; and we saw that with respect to this affirmation our Cosmic Philosophy is as

much at one with Christianity as Christianity is at one with older religious philosophies. On the other hand it is self-evident that there can be no continuity of development between a system of thought which affirms this truth and a system of thought which either denies it, like Atheism, or ignores it, like Positivism. In this respect it cannot be questioned that Comte broke with the past as completely as if he had been a dogmatic atheist. Hence is to be explained his utterly unphilosophical attempt to found a new religion. In his earlier scheme no place is left for religion at all; but when, by an afterthought, he recognized the existence in mankind of a religious sentiment which demands satisfaction, his ignoring of Deity led him to the construction of an artificial religious scheme from which the essential element of religion was entirely omitted. Had he recognized this essential element, he would have seen that the time for instituting new religions has long since passed by, and that religious progress in future is possible only through the gradual evolution of Christianity itself into higher and higher forms.

The second fatal error in Positivism is the opinion that society can be reorganized by philosophy. To demonstrate anew the fallaciousness of this opinion, which underlies the whole Comtean effort to reconstruct human society after a utopian model, would be but to repeat

the arguments which have formed the woof of our chapters on sociology. If there is any convincing power in the multitude of mutually harmonious proofs which were there accumulated, we must be already convinced that men are civilized, not by a mere change in their formulas of belief, but only by a change in their type of character which can be effected only through a considerable lapse of time. This is the reason why civilizations cannot be made, but must grow. We differ from the ancient Angles and Saxons, not so much because we know more than they knew, as because we have undergone fifteen centuries more of social discipline which has perceptibly modified our character, and with it our moral ideals. If Comte had ever firmly grasped the theorem "that society is to be reorganized only by the accumulated effects of habit upon character," he would have held himself aloof from projects which could have no meaning save on the hypothesis that society can be reorganized by philosophy. He would have seen that though the fruit of the tree of knowledge may make us like gods, knowing good and evil, it is only the tree of life which can renovate our souls and fit us for Paradise.

But now, since society grows, but is not made, — since men cannot be *taught* a higher state of civilization, but can only be *bred* into it, — it follows that the whole Comtean attempt

to construct an ideal Polity, including a new religion and new social institutions, was — save as a warning for future thinkers — just so much labour thrown away. After all his profound and elaborate survey of human history, Comte strangely forgot that the sum total of beliefs and institutions in the twentieth century will be the legitimate offspring of the sum total of beliefs and institutions in the nineteenth, but can in no case be the offspring of an individual intellect, even were that intellect ten times more powerful than Comte's. No individual will has ever succeeded in remodelling society in conformity to a prescribed ideal. Perhaps no single man, if we except the Founder of Christianity, has ever made his individual character and genius count for so much in the subsequent direction of human events as Julius Cæsar. But Cæsar never reconstructed society, and, though not instructed in the Doctrine of Evolution, would have felt such a task to be simply an impossibility. The secret of Cæsar's greatness, and of his success, lay in the wondrous common sense with which he perceived the true significance of contemporary events, and in the unflinching perseverance with which he wrought out the political system for which society was already yearning, and which the circumstances of the times rendered indispensable to the maintenance of civilization. This has been the se-

cret of the success of all statesmen of the highest order — of Charles the Great and Hildebrand, as well as of William the Silent, Edward I. of England, Henry IV. of France, and Richelieu. By a sagacious instinct these great men felt, though they could not scientifically explain, the direction in which human affairs were naturally tending; and it was because they shaped their efforts with a view to assist, and not to check or warp, the resistless tendencies of society, that they succeeded in stamping their individualities so powerfully upon history. It is from the lack of this sagacity that the ablest retrograde statesmen have either failed utterly, or at best succeeded only in working wanton mischief. Julian, and Philip II. of Spain, occupied positions which enabled them to wield enormous power, and the former was a man of signal ability and undoubtedly good intentions. Yet Julian wholly failed to see that Platonic Paganism, however well adapted it may have been to the sporadic, municipal civilization of antiquity, was no longer adapted to the intellectual and moral needs of men living under the Roman Empire. Hence his insensate attempt to destroy the only religious organization capable of holding society together during the perilous times that were coming; an attempt which his early death fortunately frustrated before it had been persisted in long enough to work much social disturb-

ance. Philip II., a man of mediocre ability and hopelessly vulgar egoism, might yet have done a good work, could he ever have been brought to understand the way in which the world was moving, and would move in spite of him. Yet he thought to establish in Romanized Europe an Oriental patriarchal despotism, and he thought by mere brute force to bring over half the civilized world to a religious system which it had forever discarded. And thus, though he wielded a power such as no man for centuries had wielded before him, he achieved absolutely nothing. At the end of his evil career, he was farther from each of his cherished aims than at the beginning. The physical power of Spain was exhausted in the vain effort to stem the course of events, and all the credit the son of Charles V. ever earned was that of being one of the most mischievous among the enemies of the human race.

Now our practical object in studying human progress scientifically is to be able to arrive at certain definite general principles of statesmanship. In every branch of speculative or practical activity, men begin by reasoning from particulars to particulars, accomplishing their results by a kind of sagacious instinct which hits upon the means requisite for attaining a given end. But after a while, as science progresses, they establish general principles of action, and work

with a distinct consciousness of the adaptation of the means employed to the end proposed. From being instinctive and irregular, their proceedings become ratiocinative and systematic; witness the whole history of industrial art. And, as that history shows, the more intelligent and coherent the course of proceeding, the less is the time and effort wasted in vain experiment. It is just the same in politics. We need to understand the conditions essential to progress, and the direction which progress is taking, that we may avoid the mischief entailed by stupid and ignorant legislation, and secure the benefits arising from legislation that is scientifically conceived and put into operation with a distinct consciousness of the ends to be secured. We need sociology that we may not waste our energies and damage society in opposing the very reforms which a little science might tell us that the community requires and will have, sooner or later, in spite of us. I do not mean to say that a knowledge of the laws of history will alone suffice to make us statesmen. Science and art are two different things, and so are scientific genius and practical genius. But if a Themistokles or a Hildebrand were to arise among us, he would be all the more useful for working in conformity to scientific principles, instead of trusting solely to his native sagacity. It is when genius works with vision that it achieves its ut-

most. And when we cannot have genius, by all means let us have vision, so far as science can impart it to us. Daily we grow indignant over the hand to mouth policy of our legislators, which inflicts so much needless suffering, and makes it so much harder for all of us to earn our bread. But we must remember that such a policy is the natural outcome of a foolish neglect of the lessons which history has to teach, and which may be read by any one who holds the scientific clew to them.

Such is our practical object, and our sole practical object, in studying sociology as a science. To attempt to construct an ideal polity, by adopting which society is to remodel itself, is to show that we have studied that science to little purpose. For if history can teach us anything, it can teach us that civilization is a slow growth, of which no one can foresee, save in its most general features, the final result; far less force that result prematurely merely by appeals to men's judgment.

How utterly Comte ignored all this — the plain teaching both of historic induction, and of deduction from the laws of organic life — can be appreciated only when we read the insane pages in which he attempts to predict the immediate future. He by no means intended that society should wait till a remote era for the entire realization of his project. In seven years

the control of public education in France was to be given to Comte. In twelve years the Emperor Napoleon was to resign in favour of a Comtist triumvirate. In thirty-three years the religion of Humanity was to be definitely established. As Mr. Mill says, "a man may be deemed happy, but scarcely modest, who had such boundless confidence in his own powers of foresight, and expected to complete a triumph of his own ideas on the reconstitution of society within the possible limits of his lifetime. If he could live (he said) to the age of Fontenelle, or of Hobbes, or even of Voltaire, he should see all this realized, or as good as realized."

But what we have here to note is not especially the personal conceit of the project, or the marks of insanity clearly indicated in these inordinate expectations; what we have to note is the mode of genesis of this wild scheme. Extravagant beyond all comparison as Comte's proposals for remodelling religion and society undoubtedly were, they can nevertheless be easily traced, in their general outlines, back to the two errors which I have above signalized as the fundamental errors of Positivism. The first error — the ignoring of Deity — necessitated a complete rupture with Christian forms of religion; and the second error — the belief that society can be reorganized by a change in formulas of belief — led naturally to the attempt to

substitute a new religion for Christianity and a new kind of civilization for the existing civilization. Thus in spite of his keen historic appreciation of the excellence of Christianity, and in spite of his sympathetic critical attitude, was Comte logically forced into a position quite as untenable as that held by the atheists and Jacobins. And now let us observe how, even as with these iconoclasts, the social state which Comte expected to substitute within forty years for the existing social state was in all essential respects a retrogradation toward a more primitive structure of society. The positivist utopia is not indeed a return to pristine savagery, like the utopia of Rousseau and his followers, but it is a reversion toward a spiritual despotism, such as was realized in ancient Egypt, and such as might perhaps have been realized in mediæval Europe, had not the policy of the Emperors opposed a salutary check to the policy of the Popes. In the chapter on the Evolution of Society, we found it to be the chief characteristic distinguishing social progress from the lower orders of organic evolution, that individuals, regarded as units of the community, are continually acquiring greater and greater freedom of action, consistently with the stability of the community. Now Comte's ideal state of society is a state in which the units of the community possess no more individual freedom than the cells which

make up the tissues of a vertebrate animal. It is an absolute spiritual despotism, — or if not technically a despotism, we may at least say of it, as Mr. Grote says of Plato's imaginary commonwealth, that it is a state in which existence would be intolerable to any one not shaped upon the Comtean model. Public opinion is to be controlled by a priestly class of philosophers, against whose authority all revolt would be as useless as the rebellion of a mediæval monarch against a papal interdict. As Mr. Spencer sums it up: the Comtist "ideal of society is one in which *government* is developed to the greatest extent, in which class functions are far more under conscious public regulation than now, in which hierarchical organization with unquestioned authority shall guide everything — in which the individual life shall be subordinated in the greatest degree to the social life." Now this cannot be unless the development of society as it has hitherto proceeded is to be diametrically reversed. As our whole inquiry into the process of social evolution has taught us, "the form of society towards which we are progressing is one in which *government* will be reduced to the smallest amount possible, and *freedom* increased to the greatest amount possible; one in which human nature will have become so moulded by social discipline into fitness for the social state, that it will need little external re-

straint, but will be self-restrained; one in which the citizen will tolerate no interference with his freedom, save that which maintains the equal freedom of others; one in which the spontaneous coöperation which has developed our industrial system, and is now developing it with increased rapidity, will produce agencies for the discharge of nearly all social functions, and will leave to the primary governmental agency nothing beyond the function of maintaining those conditions to free action, which make such spontaneous coöperation possible; one in which individual life will thus be pushed to the greatest extent consistent with social life; and in which social life will have no other end than to maintain the completest sphere for individual life."[1]

If the scrutiny of these contrasted theorems still leaves us in any doubt as to the retrograde character of Comte's ideal society, a single practical illustration will more than suffice to convince us. We have seen that certain Jacobins of the Commune announced their intention to permit scientific research only to such persons as might succeed in convincing an examining committee of average citizens that their researches were likely to be of direct practical value. I need not say that, if such a rule could be enforced, the intellectual advancement of

[1] Spencer, *Recent Discussions*, p. 128.

mankind would be instantly arrested. It is interesting to observe that Comte entertained an intention not wholly dissimilar to this. Disgusted with the insatiable curiosity which leads scientific thinkers to pry into the secrets of nature in all directions at once, often spending years upon subjects which to self-complacent ignorance or Philistinism seem entirely trivial, Comte enacted that " some one problem should always be selected, the solution of which would be more important than any other to the interests of humanity, and upon this the entire intellectual resources of the theoretic mind should be concentrated, until it is either resolved, or has to be given up as insoluble ; after which mankind should go on to another, to be pursued with similar exclusiveness." [1] It only remains to add that this all-important problem was to be prescribed by the High Priest of Humanity. When now, knowing as we do Comte's intense aversion to certain kinds of inquiry, we consider what would have been the result could such a system have gone into operation forty years ago ; when we reflect that Bessel would never have been allowed to measure the parallax of a star, that the cell doctrine in biology would have been hopelessly doomed, that Mr. Darwin's researches would have been prohibited as useless, that the correlation of

[1] Mill, *Auguste Comte and Positivism*, p. 164.

forces would have still remained undiscovered, that psychology would have been ruled out once for all, that the new chemistry would not have come into existence, and that spectrum analysis would never have been heard of; — when we reflect upon all this, we may well thank God for the constitution of things which makes it impossible that the well-being of the human race should ever be irrevocably staked upon the wisdom or the folly of a single speculative thinker.

So far as our present purpose is concerned, it would be time worse than wasted to present in further detail Comte's purely whimsical and arbitrary proposals for the remodelling of society. As questions of philosophy they possess neither interest nor value: they are interesting solely as throwing light upon the morbid psychology of a powerful mind, fertile in suggestions, but hopelessly deficient in humour. Whoever wishes to learn their character can do so at the expense of wading through one of the most dismal books in all literature — the *Catéchisme Positiviste*. Enough has been said to establish the fact that in breaking with the past and seeking to remodel religion and society artificially, Comte yielded to the inevitable necessity which compels the would-be reconstructor of society to remodel it ideally upon a lower type than that which actually exists. He would have given us

a religion without God and a society without freedom of action.

If we now pause for a moment, and gather up the different threads of the argument, we shall assist the comprehension of our own position, presently to be stated. Let us, then, contemplate in a single view the conclusions deducible from the foregoing series of criticisms.

We have seen the old statical habit of thought, as represented in the Doctrine of Creation, manifesting itself in rigid orthodoxy, both in religion and in politics. We have observed the way in which modern scientific inquiry, detecting numberless absurdities or anomalies in the religious and political orthodoxy inherited from mediæval times, yet retaining and carrying into its criticisms the statical habit of thought, has assumed an iconoclastic attitude with reference to the existing order of things. We have traced this iconoclastic attitude in the modern history of Atheism and Jacobinism, and have noted how its tendency is in the direction of social dissolution. We have found that the only possible result of a sudden and violent alteration of the existing order of things must be a retrogradation toward some lower order of things, characteristic of some less advanced type of civilization. And of this fatal necessity we have seen the most instructive example in the career of the Positive Philosophy. Though it had par-

tially compassed, in an empirical fashion, the notion of development; though it was fully alive to the barrenness of iconoclastic methods; though it began by regarding itself as the normal product of a long course of speculative evolution, — nevertheless when, by its ignoring of Deity, Positivism found itself arrayed in sheer opposition to established and time-honoured theories, the resulting retrogradation was hardly less marked than it had been in the case of atheistic Jacobinism. And when the notion (born of the statical habit of thought), that men's natural ways of thinking and acting can be suddenly changed by a change in philosophic formulas, was called to its aid, the result was that absurdest though most logically constructed of all utopias, the Positive Polity.

In view of these profoundly interesting and instructive conclusions, can we not, by sheer contrast, immediately discern what must be the critical attitude of any philosophy which is based upon the thorough and consistent recognition of the Doctrine of Evolution? We too, as well as the Positivists, have our ideal state of society, — a state well described in the passage above quoted from Mr. Spencer, in which the greatest possible fulness of life shall be ensured to each member of the community by the circumstance that in the long course of social equilibration the desires of each individual shall have

become slowly moulded into harmony with the coexistent desires of neighbouring individuals. But as cataclysms and miracles and sudden creations have no place in our purely dynamical theory of things, we do not expect to see this ultimate state of society realized within half a century. We know full well that it can be realized only in the indefinitely remote future. Nay, since the conception of absolute finality is as inconsistent with the Doctrine of Evolution as is the conception of absolute beginning, we do not regard it as destined ever to be absolutely realized. That supreme epoch of social equilibrium in which every man shall love the Lord with all his heart and his neighbour even as himself, in which the beast shall have been worked out, and, in Tennyson's phrase, the ape and the tiger shall have been allowed to die within us, in which egoistic or anti-social impulses shall be self-restrained, and every one shall spontaneously do that which tends towards the general happiness, — this supreme epoch is likely forever to remain an ideal epoch which shall relatively be more and more distinctly realized without ever being realized absolutely, just as the hyperbola forever approaches its asymptote without coming in contact with it. There will always be room left for that aspiration after a yet higher fulness of life, after a "closer walk with God," which, whether it be

expressed by the symbols of science, or by the symbols of mythology, is the indestructible essence of all religion. An absolutely perfect state of society would be, by a curious and instructive paradox, a state in which the religious sense would have no further function to subserve, because goodness would have become automatic and aspiration would be at an end.

But while our ideal state of society is one which can only be gradually, relatively, and approximatively realized, it has none the less a present existence as an ideal which we must ever strive to incarnate as far as possible in the concrete facts which make up the sum of our everyday life. There is a practical sense in which the evolutionist, no less than the radical sceptic or the orthodox believer, must recognize that he has a missionary function to fulfill. We do indeed aim, in conformity with surrounding conditions, at the realization of our social and ethical ideal, — seeking to do what within us lies to hasten the time when it may be proclaimed, with fresh significance, that the kingdom of heaven is at hand. But how shall we seek to effect our purpose? Shall we go forth to all the world and preach some "gospel of Evolution," in the hope that men, seeing the error of their ways, shall suddenly embrace the new faith and be henceforth spiritually healed? In two ways our philosophy has taught us the absurdity of such

a proceeding. *First*, such doctrines are too subtle, too spiritual indeed, to be apprehended otherwise than by a slow process of growth, intellectual and moral. Accordingly, since men's theologies are narrowly implicated with their principles of action, the taking away of their theology by any other process than that of slowly supplanting it by a new system of conceptions equally adapted to furnish general principles of action, would be to leave men trivial minded and irreligious, with no rational motive but self-interest, no clearly conceived end save the pleasure of the moment. The evolutionist, therefore, believing that faith in some controlling ideal is essential to right living, and that even an unscientific faith is infinitely better than aimless scepticism, does not go about pointing out to the orthodox the inconsistencies which he discerns in their system of beliefs. And while assured that the deanthropomorphizing process will continue to go on as it has gone on since the dawn of history, under the slow but unceasing stimulus of scientific generalization, he at the same time rejoices that a violent destruction of anthropomorphic conceptions is impossible. Refraining, therefore, from barren theologic controversy, his aim is to carry scientific methods and scientific interpretations into all departments of inquiry, in accordance with the profound aphorism of Dr. Newman : " False

ideas may be refuted by argument, but only by true ideas can they be expelled." Have we not seen that our beliefs are in a measure wrought into the very substance of our brains, so that the process of eradicating them *must* be a process of substitution which, as involving structural changes, must needs be gradual?

But *secondly*, the evolutionist must recognize that, even were it possible to effect a sudden conversion of mankind to a faith based upon scientific knowledge, such a conversion would not bring about the desired result of inaugurating a higher and better state of society. Not by a change of opinion, but by a change of heart, is the grand desideratum to be obtained. It is not by accepting all the theorems comprised in the Doctrine of Evolution, or in any other doctrine whatever, that men are to obey the dictates of selfishness less and the dictates of sympathy more. Yet *this* is the transfer of allegiance upon which, as we have elsewhere shown, the amelioration of society and the relief of man's estate depend.

And these considerations as to the critical attitude of the evolutionist with reference to theology will equally apply to his critical attitude with reference to politics, concerning which I need, therefore, add but few explanatory words. Since it is the plain teaching of history that the group of institutions making up the framework

of society at any given period cannot be violently altered without entailing a partial disintegration of society; since any custom or observance can be safely discontinued only when the community has grown to the perception of its uselessness or absurdity; and, above all, since the integrity of society depends in an ultimate analysis, not upon its institutions (which may be as liberal in Mexico as in Massachusetts), but upon the integrity of its individual members: it follows that the evolutionist will look askance at the panaceas of radical world-menders, refusing to believe that the millennium can be coaxed or cheated into existence until men have learned, one and all, each for himself, to live rightly. The only utopian ideal which he can consistently cherish is that of contributing his individual share of effort to the improvement of mankind by leading an upright life, and applying the principles of common sense and of the highest ethics within his ken to whatever political and social questions may directly concern him as member of a progressive community.

When, therefore, we are asked how we shall seek to incarnate in fact our ethical and social ideal, the reply is, we must seek to realize this ideal, in so far as our frail half-developed natures will allow, by leading pure and upright lives, repressing the selfish impulses which are our legacy from the brute, obeying the dictates of

sympathy whereby we are chiefly distinguished as human, and conforming as well as we may to the highest ethical code within our ken. As the coral reef is built by millions of tiny polyps, each giving up his little life to the process, until a stately island arises in mid-ocean, so the ideal society of the future, with its exemption from the ills which we now suffer, will be the result of myriads of individual efforts towards greater completeness of life. Every temptation that is resisted, every sympathetic impulse that is discreetly yielded to, every noble aspiration that is encouraged, every sinful thought that is repressed, every bitter word that is withheld, adds its little item to the impetus of the great movement which is bearing Humanity onwards toward a richer life and a higher character. Out of individual rectitude comes the rectitude and happiness of the community ; so that the ultimate salvation of mankind is to be wrought out solely by obedience to that religious instinct which, as shown in the preceding chapter, urges the individual, irrespective of utilitarian considerations, to live in conformity to nature's requirements. " Nearer, my God, to thee," is the prayer, dictated by the religious faith of past ages, to which the deepest scientific analysis of the future may add new meanings, but of which it can never impair the primary significance.

Thus with regard to its practical bearings upon human conduct, the religious attitude of our scientific philosophy seems to be absolutely identical with the religious attitude of Christianity. We arrive at a deeper reason than has hitherto been disclosed for the difference between our position with reference to Christianity, and that which has been assumed by Radicalism and by Positivism. It is not merely that we refuse to attack Christianity because we recognize its necessary adaptation to a certain stage of culture, not yet passed by the average minds of the community; it is that we still regard Christianity as, in the deepest sense, our own religion. Or, if a somewhat different form of statement be preferred, we regard it as a faith which, precisely in the act of realizing more and more fully its own ideal, becomes more and more fully identified with the faith which we are conscious of cherishing. Instead of the intolerant hostility of the Infidel, or the indifferent neutrality of the Positivist, we offer cordial aid and sympathy. I cannot better illustrate the twofold source of this sympathy than by citing the words of a lady who is fairly entitled to rank as one of the most original and suggestive thinkers of our time. Speaking of the lower of the two lines of thought which determine the critical attitude of the evolutionist, Miss Hennell says: "When we see the various modes

of error in belief, no longer in the light of heresies that we have the right to punish, or even to despise, but only as the incomplete condition that must of necessity belong to that which has to ripen out of the lower state into the higher; and when we bethink ourselves that it is the matter of our own most cherished aspiration that our own condition, as presently occupied, has to appear in the very same light to the station to be attained hereafter; charity towards the imperfection is so inevitable that indeed it no longer requires to be insisted on as if it required inculcation. Our sphere of religious sympathy has been so much enlarged beyond its former bounds, that the original matter of duty has become matter of simple unquestioning feeling." Now this admirably illustrates what I have called the lower of the two lines of thought which determine our position: it explains our refusal to attack Christianity. The following deeply meditated passage illustrates the higher line of thought, and shows why we identify our position with that which is held by Christianity. "Very slight ground of self-gratulation should I have found," says Miss Hennell, "in even the most palpable superiority of present faith that might have been gained, if the acquisition had really been made, as at first it appeared to me to be made, and as it must still appear to orthodox believers to be made,

at the expense of the absolute subversal and denial of the faith that had gone before it. If I could not now perceive that what was once true to me, and true to the world, was true forever, in relation to what had to come after it, I do not deny to myself that I should inevitably fall away to cease believing at all henceforth both in myself and in the world. Yes: if I could not see in relation to Christianity, just as truly as was seen by the master spirits of that religion in relation to Judaism, that neither of this later form of realization 'can one jot or tittle pass away, until all be fulfilled' in the newly arriving doctrines of General Religion, — never, I am convinced, could the latter take any real hold upon me: never, in fact, could it *be* a religion to me."[1]

To those who still adhere to the sharp distinctions characteristic of the statical view of things, who carry into their estimate of religious opinions the conception of fixity of species, it may seem absurd or sophistical in us to assimilate with Christianity a system of thought which has entirely thrown off the mythologic symbols wherein Christianity has hitherto been clothed and whereby it is customarily recognized as possessing an individuality of its own. To such it naturally seems that the giving up of the symbol is the giving up of the reality, and that

[1] Miss Hennell, *Present Religion*, pp. 50, 51.

the critical attitude of him who has given up the symbol must be an attitude of radical hostility. But now, as the crowning result of the whole argument, we are enabled to show how the dynamical view of things disposes of this paradox. He who brings to his estimate of religious opinions a Darwinian habit of mind must understand that a sudden and radical alteration of Christianity into something else is as impossible as the sudden and radical change of one type of organism into another. He will see that, while form after form has perished, the Life remains, incarnated in newer and higher forms. That which is fundamental in Christianity is not the mythologic superstratum, but the underlying spiritual principle. The mythologic symbols have changed from age to age. The constant element has been, on its intellectual side the recognition of Deity, and on its emotional side the yearning for closer union with Deity, or for a more complete spiritual life. And the three foregoing chapters have conclusively proved that this constant element, in both its aspects, remains unchanged in that religion whose symbols are shaped by science.

In using the phrase "Cosmic Theism," therefore, to denote the religious phase of the philosophy based upon the Doctrine of Evolution, I do not use it as descriptive of a new form of religion before which Christianity is gradually

to disappear. I use it as descriptive of that less anthropomorphic phase of religious theory into which the present more anthropomorphic phase is likely to be slowly metamorphosed. The conflict, as it presents itself to my mind, is not between Christianity and any other embodiment of religion or irreligion. The conflict is between science and mythology, between Cosmism and Anthropomorphism. The result is, not the destruction of religion, but the substitution of a relatively adequate for a relatively inadequate set of symbols. In the scientific philosopher there may be as much of the real essence of Christianity as there was in the cloistered monk who preceded him ; but he thinks in the language of a man and not in the language of a child.

The critical attitude of our philosophy with reference to the beliefs and the institutions amid which we live has now been quite thoroughly defined both by what it is and by what it is not. We may now, I think, safely affirm that when Mr. Mivart accuses the Doctrine of Evolution of tending toward the intellectual and moral degradation of mankind and toward the genesis of atrocities worse than those of the Parisian Commune, he clearly shows that he has not thoroughly comprehended the implications of the doctrine. The conception of evolution, which he adopts after a loose and

inconsistent fashion in so far as his own special studies have constrained him to adopt it, remains nevertheless in his mind a barren conception. He quite fails to grasp the dynamical view of things, and therefore naturally regards the overthrow of Roman Catholic theology as equivalent to the inauguration of atheism and of anarchy. We have seen — on the other hand — that all the iconoclastic attacks which have been directed either against Christianity or against the existing order of society have been theoretically based upon fallacies which are incompatible with the Doctrine of Evolution. It has been shown that, upon our general theory of life, we can look for the realization of our highest social ideal only to the perfecting of individual character under the conditions at any time existing. And for the perfecting of individual character we must rely upon that increasing sense of divine omnipresence and that increasing aspiration after completeness of spiritual life, which, taken together, constitute the permanent element in Christianity. When we add that our ethical code, deduced theoretically from the conception of Life set forth at such length in the second part of this work, is at bottom identical with the ethical code sanctioned by the highest Christianity, it at last becomes apparent how truly conservative, in the best sense of the word, is the critical attitude of our philosophy.

The iconoclast, who has the welfare of mankind nearest his heart, will indeed probably blame us as too conservative, — as lacking in robust and wholesome aggressiveness. And he will perhaps find fault with us for respecting prejudices which he thinks ought to be shocked. Our reply must be, that it is not by wounding prejudices that the cause of truth is most efficiently served. Men do not give up their false or inadequate beliefs by hearing them scoffed at or harshly criticised: they give them up only when they have been taught truths with which the false or inadequate beliefs are incompatible. The object of the scientific philosopher, therefore, will be to organize science and extend the boundaries of knowledge.

If he obtains a fresh morsel of truth, he will proclaim it to the world without dread of consequences, and let it bide its time until society comes, of its own free will and intelligence, to accept it. But while feeling it unnecessary, and often unadvisable, to urge his views upon others, no craven fear of obloquy will prevail upon him to conceal them when it is desirable that they should be stated. He will state them without mental reservation, and, above all, without fear of any possible harm that can come from the unhampered quest of truth. There is nothing more reprehensible than the secret dread of ugly consequences with which so many writers

approach all questions of vital importance. They shrink from lifting the veil which envelops the Isis-statue of Truth, lest instead of a beaming countenance they may perchance encounter a ghastly death's head. But philosophy should harbour neither fears nor repugnances, nor qualms of conscience. It is not for us, creatures of a day that we are, and seeing but a little way into a limited portion of nature, to say dictatorially, before patient examination, that we will not have this or that doctrine as part of our philosophic creed. We must feel our way as best we can, gather with unremitting toil what facts lie within our reach, and gratefully accept such conclusions as can honestly and by due process of inference and verification be obtained for our guidance. We are not the autocrats, but the servants and interpreters of Nature; and we must interpret her as she is, — not as we would like her to be. That harmony which we hope eventually to see established between our knowledge and our aspirations is not to be realized by the timidity which shrinks from logically following out either of two apparently conflicting lines of thought — as in the question of matter and spirit — but by the fearlessness which pushes each to its inevitable conclusion. Only when this is recognized will the long and mistaken warfare between Science and Religion be exchanged for an intelligent and enduring alli-

ance. Only then will the two knights of the fable finally throw down their weapons, on discovering that the causes for which they have so long been waging battle are in reality one and the same eternal cause, — the cause of truth, of goodness, and of beauty; "the glory of God, and the relief of man's estate."

INDEX

INDEX

Absolute existence, 1. 127–133. *See* God.
Absolute, nature of the, 1. 12, 19, 4. 233.
Absolute truth, no criterion of, 1. 15, 102.
Abstract sciences, 2. 4, 43, 50.
Abstract-concrete sciences, 2. 44, 48, 50.
Actinism as a mode of motion, 2. 157.
Adam, William, on progress, 3. 284; cause and effect, 4. 194.
Adaptation, direct, 3. 81, 83, 95, 122; workings of, 84–88; and natural selection, 88, 92; and social evolution, 296, 311.
Adjustment, direct and indirect, lxiv, 3. 72–96; Spencer on, 81 n., 97; life as, 97–105, 122; perfect, xcviii, 4. 218; religion as, xcviii, 4. 291–320.
Ænesidemus, 1. 33 n.
Agassiz, Louis, and the doctrine of evolution, lxii; classification of species, 2. 387, 395, 3. 247; and argument from design, 4. 187.
Aggregation and diffusion, 2. 192, 197.
Agreement, Mill's method of, 2. 82.
Albumen, composition of, 2. 214.
Alcohol, misuse of, 4. 122 n.
Algebra, illustration drawn from, 3. 147.
Altruism, chief factor in social progress, 3. 295, 298; development of, 299–305.
Ampère, A. M., magnetic action, 2. 31.
Analytical truths cannot make up a body of philosophy, 2. 189.
Anarchy, 4. 338.
Anatomy, 2. 53.
Animals, their dependence on solar energy, 2. 331.
Animism, Spencer on, cxlii.
Annulose animals, Spencer on, 2. 232.
Anstie, F. E., 2. 17.
Antelopes, illustrating use and disuse, 3. 23.
Anthropomorphic theism, xiii, xc, 4. 186–230; contrasted with cosmic theism, 1. 269, 4. 193, 211, 257; and an infinite God, 227.
Anthropomorphism, and cosmism, lii, 1. 239–277; and final cause, 1. 230, 271; must have a place in theism, 4. 288.
Antiquity of man, iv, 61, 98.
Ape, as man's ancestor, 3. 61, 4. 47, 61, 93, 99 n.
Archæus, 2. 344.
Archebiosis, 2. 352–360.
Archimedes, 1. 52, 2. 35.
Argyll, Duke of, 1. 29 n., 4. 16, 94.
Aristæus and his bees, 2. 342.
Aristotle, 1. 185.
Arnold, Matthew, iv, 291, 308.
Aryans, language, 2. 379; mental plasticity, 4. 32, 38.
Ascidian and amphioxus, 2. 390.
Association of ideas, 3, 204, 215.
Asteroids, Fiske's theory of their origin, lvii, 1. 266–276.
Astrogeny, 2. 50–52.

Astronomy, in Comte's system, 2. 10, 21, 137 n.; when constituted a science, 22–24, 29; advance in, 92; astronomic rhythms, 178.
Atheism, 4. 325; and cosmism, 1. 272.
Athens, its importance in history, 4. 13.
Atoms, constitution of, 1. 4–6, 2. 126.
Attraction and repulsion, 1. 6, 2. 154.
Automatic nervous action, 3. 229.
Autonomism, 3. 301.
Axioms, 1. 92.

Bacon, Francis, quoted, 1. 11; as inaugurator of modern philosophy, 165, 172; and subjective method, 167; and Comte, 2. 69.
Bagehot, Walter, social evolution, 4. 9, 16, 25, 128.
Bain, Alexander, on liberty of choice, 3. 263, 268.
Barbaric languages, absence of general terms in, 4. 81.
Barratt, A., on final causes, 4. 210; idea of God, 217.
Bastian, H. C., 1. 191, 4. 5; germ theory, 2. 347; archebiosis, 352–360.
Bathybius, 2. 354.
Batu at Leignitz, 4. 15.
Beale, L. S., on cancers, 2. 230.
Belief, double sense of the word, 1. 89.
Bentham, Jeremy, 2. 87.
Berkeley, George, 1. 35, 101–129, 172; his concept of matter, xlix, lx, 1. 108.
Berzelius, J. J., Baron, 2. 58.
Bessel, F. W. 2. 93.
Biology, 1. 54, 60, 2. 47; in Comte's system, 2. 11, 40; is the science of classification, 86; rhythm in, 175.
Birds and reptiles, 3. 73.
Blainville, H. M. D. de, 2. 387.
Borda, J. C., pendulum experiment, 2. 75.
Boyle, Robert, pressures and densities, 2. 30.
Bradley, James, aberration of light, 2. 28.
Brain, formation of, 3. 195, 204; of savage and civilized man, 4. 49.
Brewster, David, 2. 31.
Bridges, J. H., 2. 93, 101.
Broussais, F. J. U., 3. 107.
Brown, Thomas, 1. 76.
Bruno, Giordano, 4. 176.
Büchner, F. K. C. L., quoted, 3. 243 n.; materialism of, 4. 267.
Buckle, H. T., xxxiii; on volition, 3. 273; on social progress, 335, 354.

Cantor, Moriz, 1. 217 n.
Carbon, 2. 212, 214.
Carlyle, Thomas, "an absentee God," 4. 258.
Cartesian test of truth, 1. 66, 158; doctrine of causal resemblance, 4. 194.
Causation, li, 1. 215–238; universality of, 77, 3. 252; source of our belief in, 1. 216–220; Hamilton's theory of, 218; Mill on, 220–226; *occulta vis* in, 227; volitional theory of, 232, 4. 200.
Cause, efficient and phenomenal, 1. 227.
Causes and effects, resemblance of, 4. 194.
Cavendish, Henry, 2. 28.
Cell doctrine repudiated by Comte, 2. 91, 97.
Century of Science, religious problems in, cxxx.
Cephalic ganglia, 3. 127.
Cerebellum, 3. 127; functions of, 201.
Cerebrum, 3. 127; size of, in different animals, 194; functions of, 202, 4. 93.
Châlons, battle of, 4. 14.

Chambers, G., on nebular hypothesis, 2. 294.
Chance and law, 3. 251.
Chemical affinity, 2. 154.
Chemical heterogeneity of the earth's surface, 2. 361.
Chemism, cohesion and gravity, 2. 154.
Chemistry, 2. 11; and mineralogy, 5; and physics, 9, 24; an abstract-concrete science, 44, 48; progress in, 59; stellar, 93.
Chinese constitution of society, 3. 364, 4. 26.
Christianity, genesis of, 3. 249, 302, 320; and evolution, 4. 364.
Circulatory system, stages of its evolution, 3. 212.
Civilization, a process of adaptation, 3. 296, 311; altruism in, 298; when its progress became the dominant aspect of evolution, 4. 100, 128.
Clan, ethical sentiment in, 3. 298, 4. 142; development of, from the family, 3. 317, 4. 134.
Classification, and knowledge, 1. 15, 39–47; of like things and like relations, 45, 3. 154, 4. 65; based on genetic kinship, 2. 378–385, 388; of species, 388–391; and reasoning, 1. 45, 3. 154, 162; and perception, 156.
Climates, origin of earth's, 2. 320; interdependence of, 321.
Codfish, multiplication of, 3. 16.
Coexistence and non-coexistence, 3. 172.
Coextension, and non-coextension, 3. 172.
Cognition, and classification, 1. 15; involves recognition, 1. 17, 39, 3. 145, 156; discrimination in, 1. 19, 40, 3. 150; how it arises, 176.
Coherence and integration, 2. 220.
Cohesion, 2. 154.
Cointension and non-cointension, 3. 172.
Colours, of animals and insects, 3. 29–39; of plants, 40.
Comets, 2. 297, 3. 265.
Common-sense philosophy, 1. 113.
Community, and its environment, lxx, 3. 289, 296; more than an organism, 331.
Comparative Method, 4. 327.
Comparison in the sciences, 2. 81, 86.
Competition and progress, 4. 34.
Comte, Auguste, xxi, xliii; his weakness as a psychologist, 1. 119–2. 94, 3. 106; aberrations of opinion, 1. 193–205; abstinence from reading, 201; his sanity, 209; and Spencer, 241, 2. 62, 104; his historic sense, 1. 244, 275; law of the three stages, 248, 3. 349, 4. 328, 339; classification of the sciences, 2. 4–43, 60; his great contribution to philosophy, 63, 67; his idea of the limits of philosophy, 92, 102; and sociology, lxxiii, 3. 341, 371; legal stage of progress, 352; religion of humanity, 4. 239; his advance toward a dynamical view, 341; reorganizing of society, 343.
Concomitant variations, 2. 76, 86.
Concrete sciences, Comte's, 2. 4, 43; Spencer on, 45–47, 50.
Condillac, E. B. de 1. 173.
Condorcet, M. J. A. N. C. Marquis de, 2. 99.
Connature and non-connature, 3. 172.
Conscience, 4. 126, 140.
Consciousness, 1. 22–30; its direct warrant for the existence of its states, 93; and neural undulations, lix, 2. 335, 4. 277; governed by law of evolution, 2. 243; and molecular motion in the brain, 336, 3. 216, 274–278; an orderly succession of changes, 173, 226; as a series of psychical shocks, 179–191, 4. 279; law of its states, 3. 215; rise of, 227.

Conservatism and social progress, 4. 38.
Contingent truths defined by Mr. Lewes, 1. 85.
Contract and status, 3. 324.
Coöperation of the parts of an organism, 2. 220.
Copernicus, truth of an hypothesis, 2. 128 n.
Corporate responsibility in tribal system, 4. 22.
Correlation of forces, 2. 153.
Correlation of growth, 3. 22, 95.
Correspondence, constituting physical and psychical life, 3. 128, 129; extending in time and space, 1. 50, 3. 130, 4. 67; in specialty, 3. 136; in complexity, 138, 4. 82; in definiteness, 79; in generality, 1. 52, 4. 81; in integration, 1. 54.
Cosmic theism, xciii, 4. 231–261, 367.
Cosmism, defined, 1. 64, 134–138, 272, 4. 250; and positivism, ix, 1. 136, 271, 2. 102–116; and anthropomorphism, ix, 1. 269, 4. 257; scope and methods of, lv, 2. 117–121; idea of God in, xciv, 4. 250–260.
Cotta, Bernhard von, classification of sciences, 2. 45 n.
Coulomb, C. A. de, electric equilibrium, 2. 25.
Cousin, Victor, 1. 173.
Creation, doctrine of, 4. 179, 324.
Crime and punishment, 3. 274 n.
Cuvier, G. L. C. F. D., classification of species, 2. 387.

Darwin, C. R., geological distribution, 2. 405; discovery of natural selection, 3. 4; colours of animals, 39; variations in species, 51; and psychology, 192; gregariousness, 4. 129; moral sense, 140.
Darwinian theory, introduction of, lxii; objections to, 3. 46–71.
Darwinism and other Essays, 3. 3.
Datum objective to God, 4. 223 n., 252, 256.
Day, lengthening of, 2. 304.
Deanthropomorphization, lii, 1. 260, 3. 360, 4. 230; in the sciences, 2. 15–19; Comte's treatment of, 114; of the idea of God, 4. 306.
Deductive method, 1. 165; and subjective, 168–171; in mathematics and metaphysics, 170.
Deity. *See* God.
De Maistre, Joseph, 4. 331.
Demokritos, sense of touch, 3. 131.
Demonstration, what it consists in, 1. 91, 2. 146.
Derivation hypothesis, arguments for, 2. 378–404; and Darwinian theory, 3. 9.
Descartes, René, 1. 53; his test of truth, 145; compared with Bacon, 168; his followers, 169; final causes, 4. 190 n.
Design, argument from, and scientific study, 4. 187.
Desire and volition, 3. 261, 269.
Difference and No-Difference, 1. 130.
Differentiation, defined, 2. 219, 244–247; and integration, 229, 236.
Diffusion and aggregation, 2. 192.
Discrimination, element of, in knowledge, 1. 15, 17, 39–46.
Dissolution, and evolution, 2. 187–203; defined, 201; of solar system, 303.
Dogs, races of, 3. 13; instincts, 220.
Domestication, variations in animals under, 3. 11.
Dymond, Jonathan, 4. 144.
Dynamical and statical habits of thought, 4. 171, 322.

Ear, structure of the human, 3. 89; an organ developed by direct adaptation, 91.

Earth, evolution of the, lviii, 2. 312–324; crust of, 317; age of, 3. 69.
Eckermann, J. P., 4. 228.
Ego-altruistic feelings, 4. 145.
Electricity, discovery of, 2. 25, 30.
Eliot, C. W., xxix.
Embryology, 2. 53; and evolution, 395–403.
Emerson, R. W., quoted, 3. 32.
Emotion, and sensation, 3. 169; rise of, 228.
Emotional states, grouping of, 3. 170.
Empiricism, 1. 91.
Energy, sources of terrestrial, lviii, 2. 325–342.
Environment, adjustment of life to, 3. 97–105; social, lxx, 3. 289; heterogeneity of, 104, 313, 4. 33, 44.
Equality, perception of, 3. 145–148; and likeness, 150.
Equilibration, internal and external, 3. 81, 93, 103.
Ether, character of, 1. 7.
Ethics, 2. 53; evolution of, 4. 105–152; and religion, 153, 292.
European civilization, 4. 26, 32; why progressive, 35.
Evil, mystery of, xcix, 4. 222, 305.
Evolution, Fiske's exposition of, lxi, cv; opposed by disciples of Comte, 2. 92, 97; universality of the law, 131, 243, 3. 310, 4. 175; and dissolution, 2. 187–203; defined, 201, 207; the law of, 204–248; primary and secondary redistributions, 207, 229, 244; conditions essential to, 208, 4. 43; why manifested chiefly in organic bodies, 2. 212; rate of progress, 2. 246, 3. 105, 4. 57; of organic from inorganic existences, 2. 354, 365; continuity in cosmic, 2. 367, 4. 166; process of, 3. 94, 95, 4. 327; and society, 3. 307, 357, 361; and religion, cix, 4. 314, 360; its discovery a vast integration of correspondences, 170, 174.
Excursions of an Evolutionist, religious problems in, cxx.
Experience, limits our power of conception, 1. 82, 141, 3. 237, 4. 200 n.; how far it can tell us of the future, 1. 70, 76, 78; what is meant by, 104.
Experience-philosophy, 1. 106, 2. 148.
Experiment in the sciences, 2. 81–86.
Experimental origin of necessary truths, 1. 79.
Extinct forms intercalary between existing forms, 3. 58.
Extinction of species, 3. 21.
Eyes, of vertebrates and mollusks, 3. 77, 86; structure of human, 91.

Family, as the primordial unit of society, 4. 58, 127, 134.
Faraday, Michael, 2. 31.
Fatalism and free-will, 3. 271, 272.
Feeling, sensation and emotion, 3. 169; and consciousness, 4. 284.
Ferrier, J. F., quoted, 1. 109, 116; on evolution of man, 3. 254 n.; on cause and effect, 269 n.
Fetishism, defined, 1. 231, 248, 4. 141; and mythology, cxli, 1. 262, 2. 15, 4. 299.
Fichte, J. G., 1. 69, 75, 111.
Final causes, logical aspect of the doctrine, 4. 189; argument for, 210.
First cause, nature of, 1. 11–13, 19.
Fiske, John, as an expounder of Spencer, viii, xlii; as an independent thinker, viii, xiv, xliv, lxvii, lxxv, lxxviii; his theory of the meaning of infancy, viii, lxxxi; polemic against Comte, ix, xxi; his contribution to religious thought, ix, xiv, lxxviii, lxxxvi, cv; his belief that his opinion harmonized with Spencer's, xiii, lx. cxxxi; how he might have wished to re-

write Cosmic Philosophy, xxi, cxxxix; development of his opinions, xxiii, ciii, cxii, cxxxiv.
Force, persistence of, 1. 59, 2. 142, 4. 235; our conception of, 1. 230, 254.
Forces, correlation of, 1. 58, 2. 155–158.
Foresight, 3. 362, 4. 17, 73, 86.
Fossilization, 3. 54–58.
Fourier, Joseph, law of conduction, 2. 30; theory of heat, 143.
Frankland, the moon, 288 n.
Frazer, J. G., cxliv.
Freeman, E. A., evolution of society, 3. 317, 319; military strength, 4. 11.
Free-will, lxviii, 1. 78; and sociology, 3. 241–279; arguments for, 255, 267, 271.
French Commune, 4. 335.
Froude, J. A., on the science of history, 3. 245.

Galilei, Galileo, 1. 49, 52, 2. 22; planetary motion, 1. 157; velocity, 159; relative motion of parts and of the whole, 2. 160.
Galton, F., 4. 50 n.
Gaudry, Albert, transitional forms, 3. 59.
Generalization, so-called limits of, 2. 130.
Generosity, 4. 146.
Genesis of Language, essay on, quoted, 3. 50.
Geogony, 2. 51.
Geographical distribution and evolution, 2. 404.
Geological succession, 2. 392.
Geology, a concrete science, 2. 47; geologic rhythms, 173.
Geometry, illustration drawn from, 3. 145.
Germ-theory, lxii, 2. 346.
German language and realism, 1. 181.
Giddings, on Fiske's theory of infancy, lxxxi.
Glacial epoch, 4. 62.
God, existence of, as affirmed in Cosmic Philosophy, lxxxix, 1. 255, 272, 4. 177, 180, 250–260; as inscrutable, xciii, 4. 132, 206, 233, 247; as quasi-psychical, xcvi, civ, cxii, 4. 288; primitive idea of, cxli, 4. 299; benevolence of, 225, 306; how far knowable or unknowable, 317.
Goethe, J. W. von, quoted, 1. 1, 4. 163, 296; anecdote of St. Petersburg, 1. 178; and biology, 2. 32, 228, 3. 3; on Deity, 4. 228.
Gravitation, law of, 1. 158–160.
Gravity, 2. 154.
Greek philosophy, i, 32, 63.
Gregariousness and sociality, 4. 128.
Grimm, Jacob, i. 262.
Grove, W. R., 1. 58; modes of motion, 2. 25; experiment in actinism, 157.

Habit, dynamical explanation of, 3. 210; physical, 216.
Haeckel, E. H., Bathybius, 2. 354; classification of species, 388, 3. 72.
Hall, Sir James, produces artificial marble, 2. 83.
Hamilton, Sir William, 1. 35, 114; causation, li, 1. 218; psychology, 3. 108; perception, 166; pleasure and pain, 4. 108.
Harmonic tones, 3. 182.
Hartley, David, 1. 172.
Hastie, W., *Kant's Cosmogony*, lvii.
Hearing, and adaptation, 3. 89–91; origin and development of, 131.
Heat as a mode of motion, 2. 155.
Hedonism, 4. 124, 311.
Hegel, G. W. F., 1. 75, 98, 112; and doctrine of relativity, 134; truth, 145; subjective method, 152; identity of contradictories, 172, 182; unintelligibleness of, 176, 181; his philosophy, 178; and Comte, 211, 244 n.

Heineccius, 3. 324.
Heliconia and leptalis, 3. 37.
Hellenic political system, iii, 320.
Helmholtz, H. L. F., 1. 58; sound, 3. 182.
Helvétius, C. A., 1. 173.
Hennell, Sara, 4. 364.
Herakleitos, universe in a ceaseless flux, 2. 186.
Heredity, 3. 82, 95; of instinct, 219; of intellect, lxvii, 3. 234; and social progress, 344.
Heretics, 4. 28.
Herschel, William, Saturn, 2. 282; nebulæ, 293.
Heterogeneity, defined, 2. 218; in organic evolution, 221, 3. 104; in social evolution, 307, 313.
Hertz, xliii.
Hippocrates, 2. 22.
Historic sense, 1. 244, 275.
History, science of, 3. 245.
Hobbes, Thomas, 1. 35, 172.
Holbach, P. H. D. Baron von, 1. 173.
Homogeneity defined, 2. 218.
Horse, ancestors of, 3. 60.
Huggins, William, motion of Sirius, 2. 32; nebulæ, 294.
Humanity, Comte's religion of, 2. 111, 4. 239.
Humboldt, F. H. A. von, primitive religion, 4. 300.
Hume, David, 1. 69, 106; uniformity test, 71, 87; scepticism, 126, 174; causation, 187, 228.
Hunt, Sterry, 2. 287 n.
Hunter, W. W., religion of Santals, 4. 299.
Hutton, R. H., 4. 127.
Huxley, T. H., on Comte, 1. 243, 246, 275, 2. 69, 91; classification of species, 388; infertility of species, 3. 66; age of the earth, 69; man, 4. 59 n.; teleology of evolution, 224 n.
Huygens, Christian, theory of light, 1. 28, 191.
Hybrids, infertility of, lxi, 3. 63–67.
Hydra and sense of sight, 3. 132.
Hypothesis, its requisites, 1. 202, 2. 119.

Idealism, 1. 66, 107–131.
Ideational centres, 3. 201, 206.
Identity of contradictories, 1. 174.
Ignes fatui, 2. 16.
Immortality of man, cvii.
Inconceivable, ambiguity of the word, 1. 89; difference between inconceivable and incredible, 90.
Inconceivability-test, xlvii, 1. 87, 2. 146, 3. 237.
Individual, rights ignored in primitive society, 3. 323; recognized by higher civilization, lxxi, 3. 325; in social evolution, lxxiv, 3. 332, 4. 19; in religion, xcviii, 4. 311.
Individuation, 3. 139.
Industrial civilization and diminution of warfare, lxiii, 3. 365–371.
Infancy, meaning of, viii, lxxxi, 3. 233, 4. 130, 158, 161.
Infants, crying of, 1. 153.
Infinite, nature of the, 1. 13, 19. *See also* God.
Innate ideas, 1. 66, 148, 169.
Inorganic physics, how divided by Comte, 2. 9.
Instinct, inheritance of, lxvii, 3. 219, 223.
Integration, 2. 199, 229, 3. 103; defined, 219.
Intelligence, man's acquisition of, 4. 98.
Intuitional knowledge, 3. 236.
Isaiah, prophet, quoted, 4. 163.

Jacobism, rise of, 4. 325, and social dissolution, 331.
James, William, composition of mind, 3. 191 n.
Joule, J. P., 1. 50, 2. 26.
Julian, Emperor, 4. 329, 346.
Jupiter, planet, 2. 281.
Jurisprudence, 2. 53.

Kant, Immanuel, lvii, 1. 34, 4. 104; relativity of knowledge, 1. 69; his inconsistency, 75, 174; causation, 219; reconciliation of his philosophy with that of Locke and Hume, 1. 106, 3. 236, 4. 107; nebular hypothesis, 2. 260; free-will, 3. 269 n.
Kepler, Johann, planetary motion, 1. 157, 161, 268.
Kirchhoff, spectrum analysis, 2. 32.
Knowing is classifying, 1. 15, 39.
Knowledge, relativity of, 1. 3–30, 37; element of discrimination in, 17, 39–46; different orders of, 38; science and ordinary knowledge, 39, 4. 64.
Kowalewsky, 2. 390.

Lagrange, J. L., Count de, his principle of virtual velocities, 1. 53, 58.
Lalande, J. J. L. de, 4. 248.
Lamarck, J. B. P. A. de M., Chevalier de, classification of species, 2. 387; theory of adaptive changes, 3. 8.
Land and sea, origin of, 2. 320.
Lankester, E. R., longevity, 3. 139.
Laplace, P. S., Marquis de, heat and sound, 2. 29; remark on Newton, 204; nebular theory, 260, 293; lengthening of day, 304; volition, 3. 273; the hypothesis of God, 4. 190 n.
Laromiguière, Pierre, 1. 173.
Lavoisier, A. L., 2. 20.
Law and lawgiver, 4. 202.
Law, universality of, 2. 151.
Leibnitz, G. W. B., 1. 66–68, 106; preëstablished harmony, 34, 191, 233.
Lessing and Comte, 1. 246.
Lewes, G. H., on sense of hearing, 1. 25 n.; on Kant, 69–76; perception, 89, 99, 116; his *Aristotle* quoted, 145, 149, 188; German language, 181; Darwinism, 2. 398; life and mind, 3. 98; psychology, 109; the brain, 196 n.; fatalism, 272 n.; social progress, 354.
Lewis, G. C., 3. 284; progress, 286.
Liegnitz, battle of, 4. 15.
Life, the beginnings of, lxi, 2. 342–370; as adjustment, lxv, 3. 97–105; and mind, lxv, 3. 106–141, 4. 66; physical and psychical, 3. 124, 125; identical with ability to maintain life, 139.
Light and motion, 2. 156.
Likeness, and unlikeness, 1. 18, 45, 130, 264, 3. 145, 173, 4. 65; and equality, 3. 150.
Lion and leopard, relation between, 3. 25.
Littré, M. P. E., rejects doctrine of the unknowable, 1. 119; on Comte, 209, 2. 63, 67; on the will, 3. 264.
Locality, sense of, 4. 68.
Locke, John, his philosophy, 1. 66, 114, 172; reconciliation of his philosophy with that of Kant, 106, 4. 107; strength and weakness of his position, 3. 235.
Logic, and mathematics, 2. 44, 50; Comte's omission of, 71–75; and scientific investigation, 78; philosophy merged in, by Comte, 88.
Lowe, Robert, 4. 11.
Lubbock, Sir John, fauna of western Europe, 3. 59; primitive man, 4. 51 n., 135.
Lucretius and spontaneous generation, 2. 342.
Lyell, Sir Charles, mammoths, 2. 197; heterogeneity of environment, 3. 313.

Mach, Ernst, xliii; on Galileo, 1. 159 n.
Mackay, R. W., 4. 315.
Maine, Sir Henry, cxlv; on social

progress, 3. 286, 307, 316, 4. 136; conservatism in India, 39.
Mala prohibita, 4. 42, 153.
Malebranche, Nicolas de, occasional causes, 1. 34, 233.
Mammals, embryology of, 2. 225, 231.
Man, the central figure in the universe, cvii, cxxv; genesis of, intellectually, lxxvii, 4. 46–103; civilized man, savage and ape, 47, 59, 93, 99 n.; evolution through change of action in natural selection, 97; genesis of, morally, lxxviii, 4. 104–162; summary of the argument of genesis, 155.
Manichæism, 3. 275, 4. 223 n.
Mansel, H. L., 1. 20, 35, 36 n.; on progress, 3. 284; the Infinite, 4. 250.
Marathon, battle of, 4. 11.
Marble, Manton, vii, x.
Mariotte, Edme, pressures and densities, 2. 30.
Marriage in primitive times, 4. 135.
Mars, origin of, 2. 273; physical condition of, 288.
Marsupials and placental mammals, 3. 73, 85.
Materialism, and psychology, 3. 115; ambiguous sense of the term, 4. 263; and modern philosophy, 267; rejected by objective psychology, 272; by molecular physics, 273.
Martineau, James, datum objective to God, 4. 223 n., 252.
Mathematics, in Comte's system, 2. 10, 14; quantitative relations, 44, 50.
Matter, motion, and force, lv, 2. 137–162; composition of, 1. 3–8; primary qualities of, 117; how far known, 22, 2. 141; indestructibility of, 1. 94, 2. 138; action of matter on matter, unthinkable; 1. 6, 233, 2. 126; and spirit, lviii, xcv, 2. 124, 335, 3. 117, 238, 4. 262–290.
Maudsley, Henry, the mind, 3. 197; on the will, 258.
Mayer, J. R., and conservation of energy, 2. 26.
McLennan, the clan, 4. 135.
Mediæval philosophy, 1. 34.
Meldrum, C., 2. 325, 326.
Memory, failure of, 3. 217; rise of, 228.
Mental plasticity in social evolution, lxxv, 4. 29.
Mental phenomena. *See* Mind.
Metamorphosis of energy, 2. 340.
Metaphysics, defined and criticised, 1. 37, 154, 188–192, 261; distinction between science and, 185, 2. 127.
Meteorologic differentiation of earth's surface, 2. 320–323.
Meteorology, 2. 51.
Michelet, Jules, 2. 153; function of pain, 4. 305.
Military strength of civilized nations, 4. 9, 27.
Mill, James, 1. 42, 173, 3. 119.
Mill, J. S., attacks Spencer's test of truth, 1. 79, 88; unwittingly contravenes experience theory, 99, 3. 237; on Comte, 1. 199, 4. 354; Hamiltonian philosophy, li, 1. 120, 218; causation, 220–226, 2. 148; logic, liv, 2. 71, 79, 82, 88; uniformity of nature's law, 152; nebular hypothesis, 260; social progress, 3. 354; individuality, 4. 20; pleasure and pain, 112; cause and effect, 195; God's goodness, 224; religion of humanity, 240.
Mind, not like a blank sheet, 1. 67; the composition of, lxv, 3. 142–193; evolution of, ix, lxvi, 3. 194–240, 4. 212; not a product of matter, lviii, xcv, 2. 124, 335, 3. 117, 238, 4. 274–281; always associated with matter in our experience, 269.
Mineralogy, 2. 51.
Miracles, 4. 184.

Missing links, lxi, 3. 47–62.
Missionary enterprises, why so often futile, 3. 356; of the Jesuits in Paraguay, 4. 75.
Mivart, St. George, nature's jumps, 3. 47, 4. 324; objections to Darwinian theory, 3. 72–78, 4. 47, 370; man and apes, 3. 62.
Modern life, overwork in, 4. 120.
Molecules, 1. 3.
Moleschott, Jacob, no thought without phosphorus, 4. 268.
Monotheism, 1. 249.
Moon, physical condition of, 2. 283, 314; type of the final condition of all the planets, 303; process by which its distance is found, 3. 143.
Moral government of the world, 4. 225.
Morality, defined, 4. 125; inherited, 152; and religion, 153, 178, 241, 310.
Morphology, 2. 53, 403.
Motion, transmission of, 1. 7; how far known, 22, 2. 141; continuity of, 138; modes of, 153; direction of, 159–162, 3. 208–213; first law of, 2. 159; rhythm of, 163; dissipation and absorption, 195, 4. 166; how far to be regarded as eternal, 201.
Müller, Max, origin of myths, cxl, cxliv.
Multiplication of plants and animals, 3. 15.
Musical sounds used in illustration of consciousness, 3. 179.
Mythology, cxl, 1. 262; and metaphysics, 154; origin of myths, cxli, 4. 141.
Myths and Mythmakers, cxl.

Nationalities, doctrine of, 4. 23 n.
Natural law and Divine action, 4. 255.
Natural selection, lxi; and archebiosis, 2. 355; Darwin's discovery of, 3. 4; working of, 17–27; and special phenomena, 28; and colours of animals, 29–40; and hybridism, 63; logical character of the theory, 67; not alone the cause of the variety of living beings, 78; and adaptation, 79, 88, 92; and indirect equilibration, 94; in social evolution, lxxiii, 4. 5; point at which its action changes, lxxvii, 4. 96, 156; action modified by social conditions, 118, 337.
Nature-philosophy, 1, 112.
Nature's laws, 4. 304.
Nebulæ, constitution of, 2. 293, 297.
Nebular hypothesis, 2. 249–311.
Necessary truths, xlvii, 1. 34, 68, 77–87, 147.
Negative evidence, 1. 81.
Neo-Lamarckians, lxii.
Neptune, its retrograde rotation, 2. 249, 262; formation of, 258; discovery, 3. 154.
Nervous system, neural undulations, 3. 206; transit lines, 212; inheritance of, 220, 221.
Newman, F. W., 1. 10
Newman, J. H., 4. 360.
Newton, Sir Isaac, 2. 204; theory of gravitation, 1. 16, 162; of light, 191; of sound, 2. 29; and Spencer, 205, 242.
Nitrogen in organic matter, 2. 212, 215.
Noumenon, and phenomenon, 1. 105–141; unknowable, 139.
Nutritive and relational systems of organs, 3. 126.

Objective and subjective elements in cognition, how far separable, 1. 72.
Objective and subjective methods compared, 1. 142–185.
Observation, 2. 81.
Occasional causes, 1. 34, 233.
Occult substrata, 1. 108; demolished by Berkeley and Hume, 128.

Occulta vis in causation, 1. 227.
Oersted, H. C., magnetic action, 2. 30.
Oken, Lorenz, 1. 112.
Olbers, H. W. M., asteroids, 2. 269.
Olfactory sensations, 3. 186.
Omne vivum ex vivo, 2. 343, 347.
Orbit, eccentricity of the earth's, 2. 172.
Orchids, fertilization of, 3. 84.
Organic matter, direction of motion in, 3. 211.
Origin, proximate and ultimate, 2. 92.
Ornithodelphia, 3. 72.
Owen, Richard, 4. 191 n
Oxygen, in organic matter, 2. 212.

Pain, and pleasure, 4. 108; and sin, 297; mystery of, 305.
Palæontology and Darwinism, 3. 54.
Pangenesis, 3. 66.
Pantheism, 4. 249.
Paracelsus, A. T. B., vital principle, 2. 344.
Parental affection, and prolongation of infancy, 4. 132.
Patriotism, 3. 301.
Pearson, xlii, 1. 181 n.
Pedigree of an hypothesis, 2. 371.
Pen and feather, derivation of, 2. 383.
Pendulum, Borda's experiment, 2. 75; rhythm of, 167.
Perception, implies recognition, 1. 17, 3. 156; and discrimination, 1. 15, 3. 158; visual, 157; and reasoning, 161; and sensation, 164, 171; rise of, 228. *See also* Cognition.
Personality incompatible with infinity, 4. 227.
Phenomena, definition of, 1. 28.
Phenomenon and noumenon, xlviii, 105–141.
Philip II., 4. 347.
Philology, lxiv; and evolution, 2. 379; absence of transitional forms, 3. 48.
Philosophy, scope of, xlvii, 1. 31–64, 3. 361; and science, compared, 1. 56–64; as an organon, liv, 2. 71–101; critical attitude of, 4. 321–372.
Phosphorus and thought, 4. 268.
Phrenology, 3. 107, 196 n.
Physics, in Comte's system, 2. 11; when constituted as a science, 22, 25; how divided, 27; the science of experiment, 84; and metaphysics, 186.
Physiology, 2. 53.
Picard, Jean, 1. 164.
Planetary evolution, 2. 249–311.
Planetary motion, studied by subjective and objective methods, 1. 157; rhythm of, 2. 163, 171.
Planets, source of their heat, 1. 253; sizes of, 264; genetic rings, 266; physical condition of, 279; their ultimate fate, 307.
Plant life, chemical differentiations in, 2. 222; and solar energy, 328.
Plateau, nebular theory, 2. 259.
Plato, 1. 32; truth, 145; reminiscence, 146; creation, 149; and Comte, 150 n., 205; source of good and evil, 4. 222.
Pleasure, and pain, 4. 108; and morality, 123.
Political economy, 2. 53.
Politics and evolution, 4. 361.
Polyp and law of adjustment, 3. 100, 125.
Polytheism, 1. 248.
Positivism, ix, xliii, li, 4. 342–355; relations with idealism, 1. 119–121; antagonistic to Cosmism, ix, 1. 136, 214, 259, 273, 2. 113; and Cosmism, 102–116; five fundamental propositions of, 105.
Possibilities of thought coextensive with possibilities of things, 1. 34, 171.
Power, Infinite, source of all phe-

nomena, liii, 1. 255. *See also* God.
Precession of the equinoxes, 2. 171.
Preëstablished harmony, 1. 34, 191, 233.
Preformation, theory of, 2. 398.
Prevision, quantitative and qualitative, 1. 47; and modification of phenomena, 3. 249.
Primitive man, 3. 307, 317, 323. *See also* Clan.
Proctor, R. A., solar spots, 1. 162 n.; aspect of Saturn, 2. 282; the moon, 284 n.
Progress, misunderstood, 3. 282; is contingent and partial, 285; not universal, 286; the prime phenomenon to be investigated, 287; factors of, 289; altruism the chief factor in, 295, 298; advanced through political development, 299; and heterogeneity of environment, 313; law of, 328, 334; moral and intellectual elements in, 355; conditions of, lxxiii, 4. 3–45; of primitive man, 55.
Proklos, 1. 33.
Protective spirit, and social progress, 3. 339.
Protists, Haeckel's kingdom of, 2. 388.
Protoplasm, origin of, 2. 365.
Psychical life, 3. 128.
Psychical shocks, 3. 179–191; and nervous shock, 4. 280.
Psychogeny, 2. 53.
Psychology, and metaphysics, 1. 172, 3. 118; and biology, 106, 109, 114, 120, 140; early history of, 107; and nervous physiology, 111; province of, 111–114; the problem of, 118.
Pterodactyls and birds, 3. 74, 84.
Punic wars, 3. 366.
Pyrrho, 1. 33 n.

Quantitative and qualitative reasoning, 3. 152.
Question restated, lxxxix, 4. 165–185.

Rattlesnake, theory of its rattles, 3. 40.
Realism, 1. 97, 180.
Reality, 1. 104, 127.
Reasoning, and classification, 1. 45, 3. 154; and perception, 161; genesis of, 228.
Recognition in cognition, 1. 17, 39, 3. 145, 156.
Redi, Francesco, on wine, 2. 334, 343.
Redistribution, 2. 185, 189, 206.
Reflex action, 3. 218, 219.
Regret and remorse, 4. 140.
Reid, Thomas, 1. 108, 113–115.
Relative truth, criterion of, 1. 103.
Relativity of knowledge, xlv, 1. 3–30; canon of, 13; full meaning of the doctrine, 132; misunderstood by Comte, 2. 112.
Religion, primitive, 1. 264–268, 4. 299; as adjustment, xcviii, cix, 4. 178, 291–320; its relation to ethics, 153, 292; morality and, 178, 310; defined, c, 4. 358; so-called conflict between science and, xiv, cx, 1. 273, 4. 371.
Reminiscence and perception, 1. 147, 148.
Renan, J. E., 3. 48, 4. 182 n.
Repentance, 4. 309.
Representativeness, importance as an intellectual faculty, 4. 86; as a moral faculty, 148.
Reptiles and birds, relation between, 3. 73.
Rhythm, 2. 163–186; and redistribution, 182; universality of its law, 170; astronomic, 163, 171; geologic, 173; in organic matter, 175.
Right and wrong, 4. 123, 311.
Rigidity of the mind of a savage, 4. 88.
Robespierre, 4. 335.
Roman church, 3. 321, 326.

Rome, significance of its rule, 3. 302; laws of, 4. 41.
Rousseau, J. J., 4. 330.
Royce, Josiah, introduction to *Cosmic Philosophy*, xxi–cxlix; notes mainly relative to advance in science since the writing of *Cosmic Philosophy:* theory of knowledge, 1. 22; Greek philosophy, 33; Kant, 34; Galileo, 159; spontaneous generation, 191; undulatory theory, 192; whole as equal to the part, 217; historic thinking, 244, 245; spirits, in pharmacy, 2. 16; conservation of energy, 26; logic, 44; liquefaction of oxygen, 212; climate, 322, 323; age of the earth, 3. 69; variation of species, 81; the ear, 89; the eye, 91; sensation, 189; mind, 191, 203, 4. 282; instinct, 3. 222; Maine on society, 316. Special notice of Fiske's views, 4. 222, 237, 243, 248, 262, 280.

Saemann, lunar atmosphere, 2. 287.
Saint-Hilaire, Geoffroy, 4. 189 n.
Sainte-Beuve, C. A., sense of *nuance*, 1. 42.
Sanskrit and English, 2. 380.
Satellites, distribution of, 2. 276.
Saturn, rings of, 2. 267, 278; physical condition of, 282.
Savages, their want of foresight, 3. 362, 4. 17; compared with civilized man, 3. 135, 4. 49.
Scepticism, 1. 66, 126; its function, 3. 336.
Schelling, F. W. J. von, 1. 75, 112, 2. 228; faculty of intellectual intuition, 1. 183; test of truth, 2. 145.
Scherer, E., 4. 189.
Schlegel, A. W., his hypothesis of word-budding, 1. 96.
Schleicher, August, Aryan languages, 2. 381.
Scholastic philosophy, 1. 181.
Schopenhauer, Arthur, on Hegel, 1. 182.
Science, and Cosmic Philosophy, xxii, xxviii, lxii; compared with common knowledge, 1. 39–56, 3. 153; and philosophy, 1. 56–64; advance of, xxii, 2. 64, 4. 54; metaphysics and, 1. 185, 2. 127; had its origin in mythology, 1. 262.
Sciences, advance of, since appearance of Cosmic Philosophy, xxii, lv; organization of, liv, 2. 3–70; Comte's classification, 4–43, 60; cannot be arranged in a linear series, 33; conditions which determine their relative progress, 34–39; Spencer's division of, 45; tabular view of, 50; their relative rates of progress, 56–59.
Scientific fictions, 2. 129.
Sea, origin of, 2. 320.
Sensation, and perception, 3. 164; peripherally or centrally initiated, 169.
Sense-organs differentiated from dermal structures, 3. 131.
Servetus, Michael, 1. 95.
Sextus Empiricus, 1. 33 n.
Shaler, N. S., the rattlesnake, 3. 40.
Sight, and adaptation, 3. 87–91; origin and development of, 131; specialization of, 136, 157; visual sensations, 185.
Similarity and dissimilarity, 3. 172.
Sin, in anthropomorphism and cosmism, 4. 295–310; scientific doctrine of, 295.
Sleep, physiological explanation of, 2. 176.
Smith, Adam, 1. 166, 2. 14; division of labor, 32.
Smith, Goldwin, on science of history, 3. 253, 275, 284; free-will, 265, 270.
Social evolution, lxix, 3. 280–329; and heterogeneity of environment, 289, 307, 4. 33, 120; and altru-

ism, 3. 295, 298, 4. 147; and individuality, lxxi, lxxiv, 3. 323, 4. 19; and organic evolution, 3. 323, 327, 330; definition of, 328; prerequisites to the study of, 345; and natural selection, 4. 7; and warfare, 9; and mental flexibility, 29–35; and ethics, lxxix, 4. 138.
Society, rise of, 4. 58, 127, 134; ideal state of, 357.
Sociogeny, 2. 53.
Sociology, Fiske's interest in, xxxix, lxviii; in Comte's system, 2. 11, 41, 109; a concrete science, 47; divisions of, 53; and free-will, lxvii, 3. 241–279; arguments against the science, 244; prevision in, 248.
Sokrates, 1. 63.
Solar energy, how transferred on the earth, 2. 327; and plant life, 328; and animal life, 331; and psychical life, 339, 4. 274.
Solar ray, composition of, 1. 26.
Solar spots, idea of, scouted by Aristotelians, 1. 162.
Spallanzani, Lazaro, germ theory, 2. 346.
Special creation, lxii, 2. 345, 371–411, 4. 57, 322; theory disproved, 2. 403, 410, 4. 98.
Spectrum analysis reinforces nebular hypothesis, 2. 295.
Spencer, Herbert, application of First Principles to inorganic nature, lvi; special creation, lxiii; on animism, cxlii; on cognition, 1. 18; reasoning, 45, 4. 65; genesis of science, 1. 54; his discovery of doctrine of evolution, 59; on inconceivability test, 88; objective existence, 114, 122; difference and no-difference, 130; maintenance of correspondence, 139; and Comte, 241, 2. 62, 104; refutes law of the three stages, liii, 1. 255; classification of the sciences, liv, 2. 23, 27–38, 161; on abstractness and generality, 42; his opinion of Comte's speculations, 61; persistence of force, 144; rhythm, 180; evolution and dissolution, 201; achievements compared with Newton's, 205, 242; law of evolution, 210, 223, 231, 241; annulose animals, 232; Neptune and Uranus, 262; asteroids, 269; nebulæ, 297; earth's crust, 317; solar energy, 333; origin of man, 3. 11 n.; reproduction, 66 n.; variation of species, 81 n.; life as adjustment, 97; province of psychology, 111–114; sight, 133; perception, 149, 164; cerebrum and cerebellum, 201; motion, 210; nervous system, 213; social progress, 334, 355, 4. 352; correspondence in time and space, 69; representativeness, 90; pleasure and pain, 110, 114; primitive society, 135; altruism, 145; matter and spirit, lviii, 4. 272, 283; emendation of his phrase "nervous shock," 280; his attitude on mind and matter compared with Fiske's, lix, cxxx, cxxxi, 4. 282.
Spencerian doctrine, Fiske's exposition of, viii, xxxiv, xlii–xlv; his variance from, lvii, lix, cxxx, cxxxi, 4. 282.
Spinoza, Benedikt, erroneousness of his method, 1. 34, 170; produced a crisis in philosophy, 171; on personality of God, 4. 227.
Spirit and matter, 4. 262–290.
Spirits, origin of the term in pharmacy, 2. 16.
Spiritualism, 4. 183.
Spontaneous generation, lxii, 1. 190; theory of, 2. 343, 350.
Stahl, G. E., vital principle, 1. 188.
Status and contract, 4. 336.
Stewart, Balfour, conservation of energy, 2. 307.
Strife in evolution, 4. 220, 305.
Struggle for existence, 3. 16.

Studies in Religion, cxxv, cxxxii.
Sub-consciousness, 3. 164.
Subjective and objective methods, l, 1. 142–185; subjective method defined, 144; chief danger in, 168; failure of, in the sciences, 197.
Sun, source of its heat, 2. 253.
Survival of the fittest, 3. 18.
Sympathy, 4. 136; and representativeness, 146.

Tactual sense, 3. 131; how compounded, 188.
Taine, H. A., 3. 179.
Taste, sense of, 3. 159, 186.
Tear and *larme*, derivation of, 2. 384.
Teleological hypothesis, its logical weakness, 4. 190–194; overthrown by natural selection, 208; origin of, 213; as worked out by evolution, ciii, cv, 4. 224; as expressed in *Unseen World*, cxiii; in *Excursions of an Evolutionist*, cxxii; in *Studies in Religion*, cxxv.
Tennyson, Alfred, 4. 306.
Test of Truth, the, xlvii, 1. 65–104.
Theism, 1. 9; does not necessarily imply personality of God, 4. 251.
Theology defined, 1. 261.
Three stages, Comte's law of the, 1. 248–252, 3. 349, 359, 4. 328.
Timaios of Plato, 1. 149.
Titius, planetary laws, 2. 268.
Tobacco, misuse of, 4. 122 n.
Torricelli, Evangelista, discovery of atmospheric pressure, 2. 35.
Tours, battle of, 4. 14.
Toxodon, 3. 59 n.
Trade winds, origin of, 2. 321.
Transit lines, in brain, 3. 204, 216; in nervous system, 212.
Transitional forms, paucity of, lxi, 3. 47–62.
Transubstantiation, 1. 181 n.
Truth, test of, 1. 65–104, 145–147, 2. 146, 3. 237; definition of, 1. 65, 102, 3. 362; does not apply where experience is transcended, 1. 15, 4. 200 n.
Tylor, E. B., primitive society, 4. 50 n., 135.
Tyndall, John, atmosphere, 2. 346; sound, 3. 210.

Undulatory motion, 2. 167.
Undulatory theory of light, 1. 191.
Uniformity of belief and practice, 4. 27.
Uniformity of nature's laws, 2. 152.
Universe, origin of, 1. 8–13, 149; inscrutability of, 22, 4. 233.
University lectures, institution of, xxix, xxx.
Unknowable, doctrine of, rejected by positivism, 1. 119, 250.
Unseen World, teleology expressed in, cxiii; religious problems in, cxiii–cxx.
Unthinkable propositions, 1. 97, 216.
Uranus, retrograde rotation of, 2. 249, 262.
Use and disuse, law of, 3. 23–27, 95.

Variations in species, 3. 79, 83.
Velocity of sound, 2. 29.
Verification and metaphysics, 1. 188–192.
Vibration of particles, 1. 27–30.
Vico, G. V., theory of cycles, 2. 182.
Violins, mellowing of, 3. 209.
Virtual velocities, 1. 53, 58.
Vital principle, 1. 344, 348.
Volition, rise of, 3. 228, 260; and the will, 258; theory of the lawlessness of, 2. 18, 3. 265–279.
Volitional theory of causation, 1. 230–237, 4. 302; and mythology, cxl, 1. 263, 2. 15.
Voltaire, F. M. A. de, his Micromegas, 1. 118.
Von Baer, organic development, 1. 59, 2. 32, 228, 236, 395.

Wagner, Moritz, distribution of species, 2. 408.
Wallace, A. R., ice age, 2. 174; discovery of natural selection, 3. 6; colors of animals, 29–39; social evolution, 4. 9; change of action in natural selection, lxxvii, 4. 95, 156.
Warfare, among primitive men, 3. 298; diminution of, 362–371; in social evolution, 4. 9.
Water in organic matter, 2. 216.
Weissman, August, 3. 81 n.
Whales and ichthyosaurians, 3. 84.
Whately, Richard, 3. 257; civilization, 283, 285 n.
Whewell, William, final causes, 4. 191.
Whole as equal to the part, 1. 217.
Will, freedom of, 1. 78, 3. 255; and volition, 258.
Winchell, Alexander, the moon, 2. 315.
Windelband, Wilhelm, 1. 33 n.
Winslow, Forbes, 3. 29.
Witchcraft, 4. 182.
Wolff, K. F., law of evolution, 2. 228.
Words and facts, 1. 178, 180.
Worship, its object is the unknown, xciv, 4. 245.
Wright, Chauncey, mythology and metaphysics, 1. 154.
Wurtz, C. A., remark of Kolbe, 1. 162 n.

Zeller, Eduard, 1. 33 n.
Zoölogy, illustration drawn from, 3. 148.

THE END